Lanterns.

No. 280 and 78.

Cadet.

No. 39.

No. 3.

No. 280—HAM'S GEM COLD BLAST, tin tubular, clipper lift, Gem cold blast No. 1 burner, ⅝ inch, No. 00 globe; weight per case, 37 lbs., ... Per Dozen, $13.50

No. 78—HAM'S GEM COLD BLAST, solid brass, nickel-plated, tubular, clipper lift, Gem cold blast No. 1 burner, ⅝ inch wick, No. 00 Gem globe; weight per case, 39 lbs., ... Per Dozen, 27.00

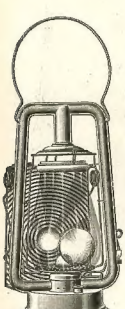
Cadet, all brass, can be lighted without removing globe; weight per doz., 3½ lbs., ... " 4.00

No. 39—HAM'S RAILROAD, tin bottom, single guard, double wire, No. 1 ratchet, lard oil burner; weight per case, 50 lbs., ... Per Dozen, 15.00

No. 3—CONDUCTORS', nickel-plated, hinge top, removable globe, plain flint globe, ⅝ inch ratchet burner, burns lard oil or railroad signal oil; weight each, 2 lbs., ... Each, 9.00

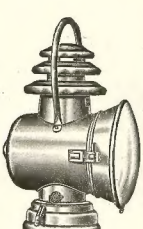
Nos. 280, 78 and 39, one dozen; Cadet, three dozen, in a case; No. 3, one in a box.

Dash Lanterns, Driving and Motor Lamps.


No. 15.

No. 17.

Dietz Driving Lamp.


Dietz Regal Motor.

No. D.
Bracket for side of dash, used with Dietz Regal.

No. C.
Bracket for front of of dash, used with Dietz Regal.

Dash Lanterns, with Reflectors and Dash Attachments.

No. 15—HAM'S CLIPPER LIFT, tin, two-piece tubular, No. 1 burner, No. 0 bull's eye globe, ⅝ inch wick, blue japanned; weight per case, 28 lbs., ... Per Dozen, $15.00

No. 17—HAM'S COLD BLAST, round tube, bottom lift, No. 2 cold blast burner, 1 inch wick, No. 0 cold blast bull's eye globe, blue japanned; weight per case, 18 lbs., ... Per Dozen, 22.00

Half dozen in a case.

Driving and Motor Lamps.

Dietz Driving Lamp, tin tubular, japanned black, ⅝ inch wick, 20 candle power, for kerosene, burns 21 hours without refilling; weight per doz., 36 lbs., ... Per Dozen, $48.00

Dietz Regal Motor Lamp, tubular, brass, beveled moulded lens in front, reflector of rolled silver plated copper, 11 inch high, 6 inch diameter, burns 24 hours without refilling, for kerosene; weight, 3¾ lbs.; lamps are made in pairs with sockets on each side for use as a headlight, ... Each, 10.00

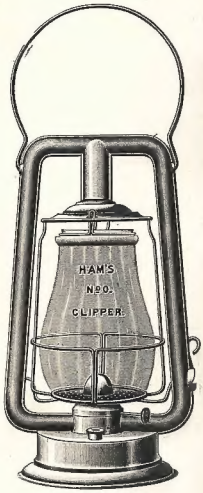
Holders, for front or side of vehicle. Nos. C or D, ... " .80

Lanterns.

Ham's.

No. 200.

Nos. 235 and 245.



No. 210.

Ham's Cold Blast, Clipper Lift, Two Pieced Tube, Tin Tubular Lantern.

No. 200—No. 1 cold blast burner, ¾ inch wick, No. 0 cold blast globe; weight per case, 44 lbs., ... Per Dozen, $15.00
No. 235—No. 2 cold blast burner, 1 inch wick, No. 0 cold blast globe; weight per case, 25 lbs., ... " 16.00

One dozen in a case.

Ham's Cold Blast, with Copper Font, Clipper Lift, Tin Tubular Lantern.

No. 245—No. 2 cold blast burner, 1 inch wick, No. 0 cold blast globe, copper font; weight per case, 36 lbs., . . Per Dozen, $24.00

One dozen in a case.

Ham's Clipper Lift, Two Pieced Tube, Tin Tubular Lantern.

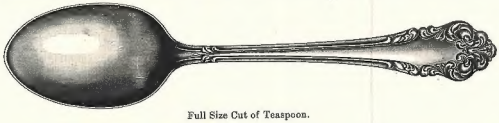
No. 210—No. 1 burner, ¾ inch wick, No. 0 globe, locked burner, inside guard, retinned oil font; weight per case, 36 lbs., ...Per Dozen, $10.00

One dozen in a case.

"Avalon" Pattern Silver-Plated Ware.

Stamped "Oneida Community."

The Avalon pattern in "Triple-plus" plate is guaranteed for twenty-five years. It possesses the art and finish of the best sterling silver. Each piece of the Avalon pattern has been given as much individuality as possible, while conforming to the general character of the design. The ornamentation is rich and deep, bright finish.



Full Size Cut of Teaspoon.

	Teaspoons.	Dessert Spoons.	Tablespoons.	Coffee Spoons.	Five O'Clock Teaspoons.
Avalon, Per Dozen,	$7.50	13.50	15.00	7.50	7.50

One dozen in a box.

Baby Spoons, Avalon Pattern, triple-plus plate, ... Per Dozen, $11.50

One in a box.

Pickle Forks, Avalon Pattern, triple-plus plate, ... Per Dozen, $11.00

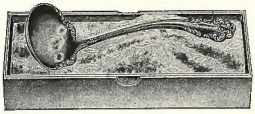
One in a satin-lined box.

Sugar Shells, Avalon Pattern, triple-plus plate, ... Per Dozen, $14.00

One in a satin-lined box.

Butter Knives, Avalon Pattern, triple-plus plate, ... Per Dozen, $16.50

One in a satin-lined box.



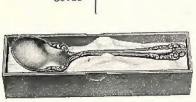
Ladles, Avalon Pattern, triple-plus plate.

Cream Ladles,	Per Dozen,	$22.50
Gravy Ladles,	"	30.00
Soup Ladles,	"	80.00

One in a satin-lined box.

Cold Meat Fork, Avalon Pattern, triple-plus plate, ... Per Dozen, $21.00

One in a satin-lined box.



Berry Spoons, Avalon Pattern, triple-plus plate, plain bowl, ... Per Dozen, $34.00
Berry Spoons, Avalon Pattern, triple plus plate, gilt bowls, ... " 46.00

One in a satin-lined box.

Receipt for Cleaning Tarnished Plated Ware.

Dissolve one-half pound Cyanide of Potassium, one-half pound Salts Tartar, in one gallon soft water.

Directions.—Dip the article in the solution for a few seconds only and wash with clean hot water. Wipe dry with a soft towel or chamois skin.

Caution.—This solution is a deadly poison when taken into the stomach.

"Avalon" Pattern Silver-Plated Ware.

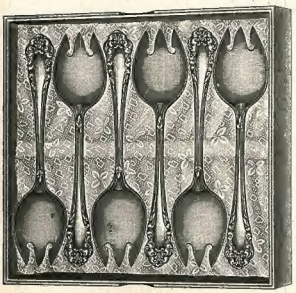
Stamped "Oneida Community."

Baby Spoon and Food Pusher, AVALON PATTERN, triple-plus plate, ... Per Set, $1.90

One set in satin-lined box.

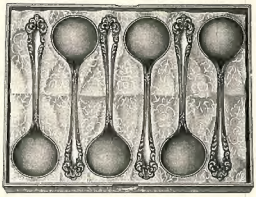
Orange Spoons, AVALON PATTERN, triple-plus plate, ... Per Dozen, $10.00

Six in satin-lined box.

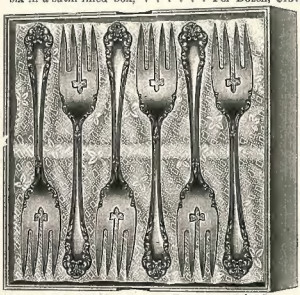


Ice Cream Spoons, AVALON PATTERN, triple-plus plate, ... Per Dozen, $11.00

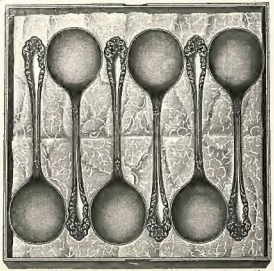
Six in satin-lined box.



Bouillon Spoons, AVALON PATTERN, triple-plus plate; six in a satin-lined box, ... Per Dozen, $13.00



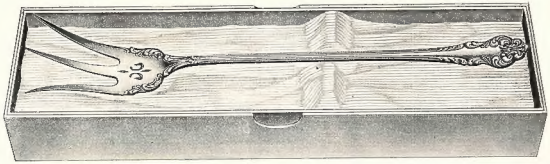
Individual Salad Forks, AVALON PATTERN, triple-plus plate; six in a satin-lined box, ... Per Dozen, $15.00



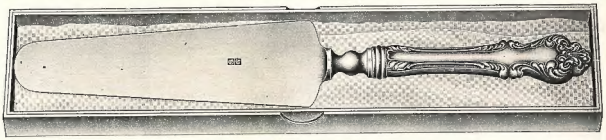
Soup Spoons, AVALON PATTERN, triple-plus plate; six in a satin-lined box . . . . . Per Dozen, $16.00
Without satin lined box, ... " 15.00

"Avalon" Pattern Silver-Plated Ware.

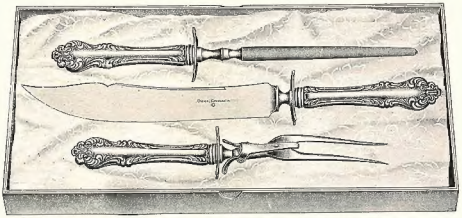
Stamped "Oneida Community."



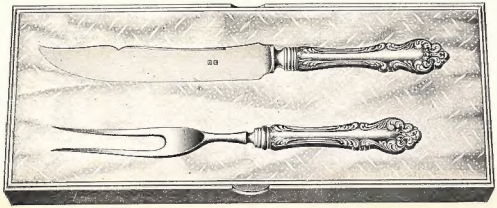
Lettuce Forks, AVALON PATTERN, triple-plus plate; one in a satin-lined box. . . . . Per Dozen, $29.00



Pie Server, AVALON PATTERN, triple-plus plate; one in a satin-lined box . . . . . Per Dozen, $52.00



Carving Sets, AVALON PATTERN, 9 inch blade, triple-plus plate; one set in a satin-lined box . . . . . Per Set, $20.00



Bird Carvers, AVALON PATTERN, 6 inch blade, triple-plus plate; one pair in a satin-lined box . . . . . Per Pair, $9.20

Medium Knives and Forks.

"White Rock" Solid Metal.

Blades will not bend out of shape, and can be sharpened and honed like a high grade steel knife.

Branded—"White Rock Silver B. M. S. Solid."

For beauty and durability these goods are unsurpassed. We guarantee these Knives and Forks to be the highest grade of solid metal goods manufactured.

No. 1 —MEDIUM KNIVES AND FORKS, scimiter swaged blades only, ... Per Set, $4.70
No. 1K—MEDIUM KNIVES only, ... Per Dozen. 4.70
No. 1F—MEDIUM FORKS only, ... " 4.70

Silver White Rock.

No. 2—PLAIN MEDIUM KNIVES AND FORKS, scimiter and swaged blades. with Windsor forks, ... Per Set, $4.70
No. 3—PLAIN MEDIUM KNIVES AND FORKS, straight blades, with Windsor forks, ... " 4.50
No. 4—PLAIN MEDIUM KNIVES AND FORKS, scimeter and swaged blades, with round end forks, ... " 5.00

Knives and Forks one set in box; Knives and Forks, only half-dozen in box.

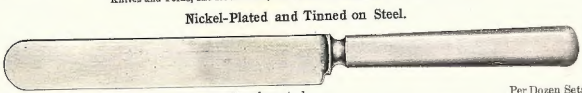
Rogers' Nickel Silver.

Rogers' Nickel Silver, Round End.

STRAIGHT BLADE medium Knives and Forks, . . Per Set, $4.50
SCIMITER BLADE medium Knives and Forks, . . " 4.70
STRAIGHT BLADE Knives only, ... Per Dozen, $4.50
SCIMITER BLADE Knives only, ... Per Dozen, 4.70
MEDIUM FORKS only, ... " 4.50

Knives and Forks, one set in a box; Knives and Forks only, half dozen in a box.

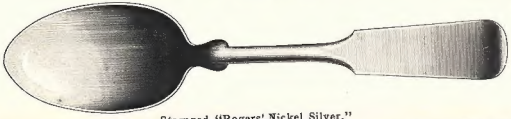
Nickel-Plated and Tinned on Steel.



No. 6900—MEDIUM KNIVES AND FORKS, round handle, tinned on steel, ... Per Dozen Sets, $13.00

One set in a box.

Solid Metal Spoons.



Stamped "Rogers' Nickel Silver."

No. 24—TIPPED TEASPOONS, nickel silver, . Per Dozen, $1.20
No. 24—TIPPED TABLESPOONS, nickel silver, " 2.40
No. 31—TIPPED TEASPOONS, heavy, nickel silver, Per Doz., $1.50
No. 31—TIPPED TABLESPOONS, heavy, nickel silver, " 3.00

One dozen in a box.

"White Rock" Solid Metal Ware.

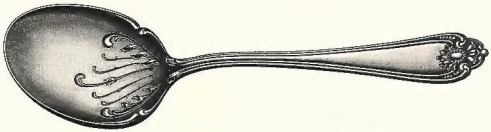
For beauty and durability these goods are unsurpassed. We guarantee these to be the highest grade solid metal goods manufactured.

A pure white metal, same color all the way through.

Stamped "White Rock Silver B. M. S. Solid."

	Teaspoons,	Dessertspoons,	Tablespoons
Arden Pattern, Per Dozen,	$2.00	3.50	4 00

One dozen in a box.



Stamped "White Rock Silver B. M. S. Solid."

Arden Sugar Shells, ... Per Dozen, $7.00

One-twelfth dozen in a satin lined box.

Stamped "White Rock Silver B. M. S. Solid."

Arden Butter Knives, ... Per Dozen, $7.00

One-twelfth dozen in a satin lined box.

Stamped "White Rock Silver B. M. S. Solid."

Arden Combination, butter Knife and Sugar Shell, ... Per Set, $1.00

One set in a satin lined box.

"White Rock" Solid Metal Ware.

For beauty and durability these goods are unsurpassed. We guarantee these to be the highest grade solid metal goods manufactured.

A Pure White Metal; Same Color All the Way Through.

Tipped Pattern, Very Heavy, Stamped "White Rock Silver B. M. S. Solid."

	Teaspoons.	Dessert Spoons.	Tablespoons.
Per Dozen,	$2.00	$3.50	$4.00

One dozen in a box.

Wears like Sterling Silver; No Plating to Wear Off.

Unique Pattern, Stamped "White Rock Silver B. M. S. Solid."

	Teaspoons.	Dessert Spoons.	Tablespoons.
Per Dozen,	$2.00	$3.50	$4.00

One dozen in a box.

Stamped "White Rock Silver B. M. S. Solid."

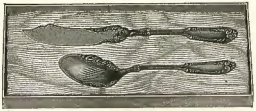
Unique Sugar Shells, ... Per Dozen, $7.00

One-twelfth dozen in a satin-lined box.

Stamped "White Rock Silver B. M. S. Solid."

Unique Butter Knives, ... Per Dozen, $7.00

One-twelfth dozen in a satin-lined box.



Stamped "White Rock Silver B. M. S. Solid."

Unique Combination, butter knife and sugar shell, ... Per Set, $1.00

One set in a satin-lined box.

TRADE VILLAGE BLACKSMITH MARK

Village Blacksmith
HANDMADE
BUTCHER KNIVES AND TOOLS.
Exclusively Distributed by Us.

Remember:

The Hand Forging—
Brings out the soul of the steel.

The Tempering
is done by a hot, steady fire and cool, steady workman.

Shaped Singly
on a Wheel. No dies, stamps, nor presses.

Ground by Hand.
Not the quantity way,
But the quality way.

Finished Rough,
But honest quality shines through the rugged exterior.

Skillful Handwork
In the honing.

Rigidly Inspected.
Only perfect blades let pass.

Introductory:

In this age of automatic production there are still some branches of manufacture where the hand process will always hold the place of superiority, and cutlery-making is one of them. Repeated trials have proved that no matter how accurate the machine methods, the hand-way, slow but sure, still turns out better knives and tools. Village Blacksmith Butcher Knives and Tools have not the uniform finish of the machine-made goods, but uniformity of finish can never replace that subtle quality, "the soul of the steel," which can only be brought out by hand-working. To the man who understands the process of cutlery-making, the appearance of Village Blacksmith goods in itself bespeaks this quality—the hand method will not admit of putting a "crocus bloom" finish on its products. Every slight deviation from the standard shape tells of the painstaking, hand-shaping and grinding conducted so as to preserve all of that life and temper previously wrought into the steel at the anvil. Every small surface roughness on a Village Blacksmith knife or tool is caused by the driving of the hard crusts into the steel. From the first rough forging to the hand-honing that gives them a ready-to-use edge, and the careful packing in neat cartons, with each knife separately enclosed in a rust-proof sheath.

Sold with an Unlimited GUARANTEE.

Each Knife put up in a Rust Proof Sheath.

Village Blacksmith Butcher Knives.

Sold with an Unlimited Guarantee.

"113" Butcher.

Hand Forged, Honed Edge, Beech Handle, Brass Rivets.

No. 113—Ins.,	4	6	6½	7	7½	8	9
Per Dozen,	$4.00	4.80	5.80	6.40	7.10	7.90	9.30

Half dozen in a box.

"113" Sticking.

Hand Forged, Honed Edge, Beech Handle, Two Brass Rivets.

No. 113—Ins.,	6	6½	7
Per Dozen,	$4.80	5.80	6.40

Half dozen in a box.

"113" Skinning.

Hand Forged, Honed Edge, Beech Handle, Two Brass Rivets.

No. 113—Ins.,	5½	6	6½	7
Per Dozen,	$5.40	6.10	6.70	7.80

Half dozen in a box.

"113" Boning.

Hand Forged, Honed Edge, Beech Handle, Two Brass Rivets.

No. 113—Ins.,	5½	6	6½	9
Per Dozen,	$5.40	6.10	6.70	7.80

Half dozen in a box.

"213" Butcher.

Hand Forged, Honed Edge, Walnut Handle, Two Brass Rivets.

No. 213—Ins.,	6	6½	7	7½	8	9
Per Dozen,	$6.10	7.10	7.70	8.40	9.20	10.60

Half dozen in a box.

☞ Each knife put up in a rust proof sheath.

Village Blacksmith Knives.

Sold with an Unlimited Guarantee.

Bread Knives.

Hand Forged, Honed Edge.

No. 225—8 in., lignum-vitae handle, two brass rivets, ... Per Dozen, $9.00

Half dozen in a box.

Hand Forged, Honed Edge.

No. 350—8 in., rosewood handle, German silver bolster, ... Per Dozen, $12.00

Half dozen in a box.

Hand Forged, Honed Edge.

No. 70—8 in., rosewood handle, two brass rivets, ... Per Dozen, $11.00

Half dozen in a box.

Slicers.

Hand Forged, Honed Edge, Lignum-vitæ Handle.

No. 225—Ins., ...	10	12	14
Per Dozen, ...	$10.00	14.00	18.00

Half dozen in a box.

Hand Forged, Honed Edge, Rosewood Handle, German Silver Bolster.

No. 325—Ins., ...	10	12	14
Per Dozen, ...	$13.00	17.00	21.00

Half dozen in a box.

House Knives.

Hand Forged, Honed Edge.

No. 413—8 in., lignum-vitae handle, ... Per Dozen, $10.40

Half dozen in a box.

☞ Each knife put up in a rustproof sheath.

Village Blacksmith Butcher Knives.

Sold with an Unlimited Guarantee.

Steak Knives.

Hand Forged, Honed Edge, Scimiter Blade, Walnut Handle, Three Brass Rivets.

	10	12	14
No. 229—Ins.,			
Per Dozen,	$20.00	24.00	33.00

Half dozen in a box.

Hand Forged, Honed Edge, Scimiter Blade, Beech Handle, Two Brass Screws.

	10	12	14
No. 119—Ins.,			
Per Dozen,	$17.00	21.00	30.00

Half dozen in a box.

Hand Forged, Honed Edge, Walnut Handle, Three Brass Bolts.

	10	12	14
No. 213 -Ins.,			
Per Dozen,	$19.00	23.00	32.00

Furnished with beech handle at $3.00 per dozen, list, less. Order by No. 113.

Half dozen in a box.

Anthracite Blue, Boxwood Handle, Three Brass Rivets, Hand Forged, Honed Edge.

	10	12	14
No. 500—Ins.,			
Per Dozen,	$21.00	26.00	39.00

Half dozen in a box.

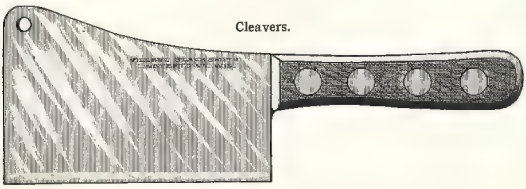
Splitting Knives.

Village Blacksmith, Hand Forged, Honed Edge.

No. 213—12 in., walnut handle, four brass rivets; wt., 2 lbs., ... Per Dozen, $36.00

One in a package.

Cleavers.



Village Blacksmith, Hand Forged, Honed Edge, Walnut Handle.

No. 23—House, 6 in.; wt., 1 lb., ... Per Dozen, $16.00

No. 33—Restaurant, 7½ in.; wt., 1½ lbs., ... " 18.00

Half dozen in a box.

Village Blacksmith Butcher Knives.

Sold with an Unlimited Guarantee.

"500" Butchers.

Anthracite Blue Finish, Hand Forged, Honed Edge, Boxwood Handles, Two Brass Rivets.

No. 500—Ins.,	6	6½	7	7½	8	9	10	12	14
Per Dozen,	$6.50	7.80	8.70	9.50	10.25	12.00	21.00	26.00	39.00

Our Anthracite Blue Line is so called from the combination oven and hard coal fire tempering, which produces a beautiful deep blue color, attractive in appearance and proving painstaking care and expert knowledge of steel in the working. For some time past this line has been made for skilled butchers and tannery workers, who wanted some surface evidence of quality, and we have worked up a big reputation on these goods. The knives once introduced are so easily remembered that they are always called for again. The Anthracite Blue Line is very popular and a quick seller among those who know what constitutes real cutlery quality.

Half dozen in a box.

"500" Sticking Knives.

Anthracite Finish, Hand Forged, Honed Edge, Boxwood Handle, Two Brass Rivets.

No. 500—Ins.,	6	6½	7
Per Dozen,	$6.50	7.80	8.70

Half dozen in a box.

"500" Skinning Knives.

Anthracite Blue Finish, Hand Forged, Honed Edge, Boxwood Handle, Two Brass Rivets.

No. 500—Ins.,	5½	6	6½	7
Per Dozen,	$7.20	8.25	9.05	10.60

Half dozen in a box.

"313" Butcher Knives.

Hand Forged, Honed Edge, Rosewood Handle, German Silver Bolster.

No. 313—Ins.,	6	6½	7	7½	8	9
Per Dozen.	$7.30	8.60	9.50	10.20	11.00	13.00

Half dozen in a box.

"600" Royal Chef Knives.

Hand Forged, Honed Edge, Rosewood Handle, Two Brass Rivets.

No. 600—Ins.,	7	8	10	12
Per Dozen,	$12.00	14.00	20.50	25.50

Half dozen in a box.

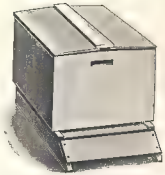
☞ Each knife put up in a rust proof sheath.

Bee Keepers' Supplies.

Telescope Hives.

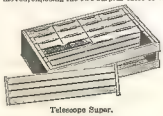
Cut showing Telescope Hive, with two Supers on and the Hood slipped down over them.

Cut showing 2 story Telescope Hive, with Hood removed, exposing the two surplus cases to view.



Cut showing Telescope Hive prepared for winter.

Brood chambers of the Telescope Hives are just the same as the brood chamber of the Dovetailed Hive, but the supers are glassed on both sides, thus permitting the operator to see what is going on inside of the supers without disturbing the bees in the east. The bottom board of the Telescope Hive is a combination of bottom board and hive stand, ornamental, and useful in keeping the hive up from the damp ground.



Telescope Super.

The Telescope supers are furnished with the slat separators, and when complete, contain twenty four 1-pound sections, and as two supers can be used to the hive, they give a surplus capacity of forty-eight pounds

1½ Story, 8 Frame, Telescope Hives.

No. 1-T Telescope Hive, complete with sections and starters: weight, 31 lbs., ... Each, $3.40

No. 1E-T—Telescope Hive, without sections and starters; weight, 30 lbs., ... Each, 3 00

2 Story, 8 Frame Telescope Hives.

No. 2-T -Telescope Hive, complete with sections and starters; weight, 34 lbs., ... Each, 4.50

No. 2E-T—Telescope Hive, without sections and starters; weight, 31 lbs., ... Each, 3.80

The brood chamber of the Telescope Hive is fitted with improved Hoffman frames.

5 in a crate.

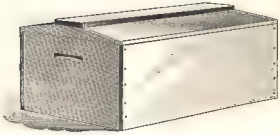
Telescope Supers.

Supers, with section holders, sections and starters; weight, 6 lbs., ... Each, $0.70

Supers only, without section holders, sections or starters; weight, 4 lbs. . . . . Each, $0.34

Telescope Hood or Cap; weight, 8 lbs., ... " .96

Winter Cases for Hives.



Winter Cases—In Flat; weight, each, 10 pounds, Each, $0 96

Single-walled hives are hardly sufficient to winter bees in out of doors without protection. We recommend this hood which is similar to those used on the Telescope Hive These hoods are large enough to slip down over the hive, clear to the bottom board, leaving a dead air space between the wall of hive and hood, and will admit of placing a two-inch chaff cushion on top of brood frames. If thus protected, bees will winter well on summer stands and will consume less honey than when wintered only in a single walled hive

Hive Hooks.

This is a neat and convenient arrangement to fasten loose bottoms when you want to move the hive; or hold down the roof; or to fasten two parts of a hive together

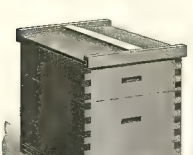
Dibbern Hive Hooks—Wrought Iron, Per Pair, $0 10

Bee Escapes.

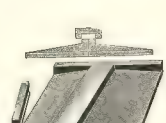
Porter's Bee Escapes—Metal, ... Per Dozen, $3.00

Bee Keepers' Supplies.

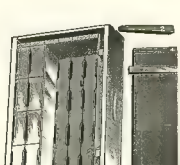
Higginsville Dovetailed Hives.



Cut showing Style No. 1, 1½ story Dovetailed Hive.



Cut showing the parts of the improved "Higginsville" Hive Cover



Cut showing new Dovetailed Hive Super and Follower Board.

8 Frame Dovetailed Hives.

1 Story, 8 Frame.

No. 1A—1 Story (brood chamber only, no super or section case), 8 Hoffman self-spacing frames, one division board, one bottom board, one Higginsville hive cover, without starters; weight, 20 lbs., ... Each, $2.00

No. 1B—Same as No 1A, but with starters . . . . . " 2.10

1½ Story, 8 Frame, for Comb Honey.

No. 1 -1½ Story Hive, for comb honey, one brood chamber with 8 improved Hoffman frames and follower board; one super with a follower and two wedges, six scalloped section holders, 5 wood scalloped separators; 24 scalloped sections, 4¼x4¼x1¾ inches, and 24 comb foundation starters for sections; bottom board, cover, nails and trimmings; weight 26, lbs., . . Each, $3.10

No. 1E—Same as No. 1, but without sections and starters. . " 2.70

2 Story, for Comb Honey.

No. 2—Dovetailed Hive, 8 frame, consisting of one body with eight improved Hoffman frames; follower board, two supers with two followers and four wedges, twelve scalloped section holders; 48 scalloped sections, 4¼x4¼x1¾, with 10 wood scalloped separators; 48 comb foundation starters for sections, bottom board, cover, nails and trimmings; weight, 30 pounds, . . . Each, $4.10

No. 2E—Same as No. 2, but without sections and starters, . " 3.40

1½ Story, for Extracted Honey.

No. 5X—This is a regular 1½ Story Hive, having one shallow super with shallow extracting frames, 5⅜ inch deep, 8 improved Hoffman frames, two follower boards, bottom board and cover, wedges, nails and trimmings; weight, 25 lbs., ... Each, $2 70

2 Story, for Extracting.

No. 5—Dovetailed Hive, 2 story for extracted honey, consists of two bodies (of same size) with 16 improved Hoffman frames, bottom and cover, two follower boards, wedges, nails and trimmings; weight, 32 lbs., ... Each, $3.20

Five Hives (or bodies) in a crate. Five Supers in a crate.

Parts of 8 Frame Hives.

Cover-board, 8-frame	Each,	$0.45
Bottom-board, 8-frame	"	.34
Empty body, 8-frame, with T tins only	"	68
Shallow super, empty, with flat tins only	"	34
Shallow super, with section-holders and separators	"	.70
Shallow super, with section-holders, separators, sections and starters	"	90
Deep super, empty, with flat tins only	"	.36
Deep super, with frames, division-boards and starters, ...	"	.72
Deep super, section-holders, separators, sections and foundation starters, ...	"	1.00

10 Frame Dovetailed Hives.

1 Story, 10 Frame.

No. 1-10A—1 Story, (brood chamber only, no super or section Case), 10 Hoffman self-spacing frames, one division board, one bottom board, one Higginsville hive cover, without starters; weight, 22 lbs., ... Each, $2.20

No. 1-10B—Same as No. 1-10A, but with starters, ... " 2.30

1½ Story, 10 Frame, for Comb Honey.

No. 1-10—1½ Story Hive, for comb honey, one brood chamber with 10 improved Hoffman frames and follower board, one super with a follower and two wedges, six scalloped section holders, five wood scalloped separators; 24 scalloped sections, 4¼x4¼x1¾ inches and 24 comb foundation starters for sections; bottom board, cover, nails and trimmings; weight, 29 lbs , Each, $3 40

No. 1-10E—Same as No. 1-10, but without sections and starters, ... Each, 3.00

2 Story, for Comb Honey.

No. 2-10—Dovetailed Hive, 10 frame, consisting of one body with ten improved Hoffman frames; follower board, two supers with two followers and four wedges, twelve scalloped section holders; 48 scalloped sections; 4¼x4¼x1¾, with ten wood scalloped separators; 48 comb foundation starters for sections, bottom board, cover, nails and trimmings; weight, 38 lbs., . . . Each, $4.50

No. 2E-10—Same as No. 2-10, but without sections and starters, ... Each, 3.80

1½ Story, for Extracted Honey.

No. 5X-10—This is a regular 1½ Story Hive, having one shallow super with shallow extracting frames, 5⅜ inches deep, 10 improved Hoffman frames, two follower boards, bottom board and cover, wedges, nails and trimmings; weight, 29 lbs., . . Each, $3.00

2 Story, for Extracting.

No. 5-10—Dovetailed Hive, 2 Story for extracted honey, consists of two bodies (of same size) with 20 improved Hoffman frames, bottom board and cover, two follower boards, wedges, nails and trimmings; weight, 35 lbs., ... Each, $3.50

Five Hives (or bodies) in a crate. Five Supers in a crate.

Parts of 10 Frame Hives.

Cover-board, 10-frame	Each,	$0.52
Bottom board, 10-frame	"	.38
Empty body, 10-frame with T tins only	"	.72
Shallow super, empty with flat tins only	"	.36
Shallow super, with section-holders and separators	"	.80
Shallow super, with section holders, separators, sections and starters	"	1.04
Deep super, empty with flat tins	"	.38
Deep super, with frames and division-boards	"	.84
Deep super, with frames, division-boards, starters	"	.91
Deep super, section-holders, separators, sections and starters .	"	1.10

Depth of shallow super for dovetail hives is 4⅞ inch; for deep super, 5⅞ inch.

We shall be pleased to furnish on request a complete descriptive catalogue of Bee Supplies.

Bee Keepers' Supplies.

Bee Smokers.

Clark's Smoker—The blast is forced from the tube in front of instead of through the fire. The fuel is inserted through an opening in the base, ... Each, $0 90

Bingham.

Acme.

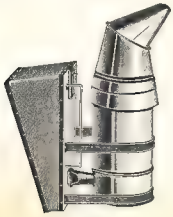
Bingham Smoker.

This is strong, well made, does not clog up, and burns any fuel It has recently been improved by the addition of a curved snout to prevent fire dropping, and a safety attachment to prevent burning the fingers in removing the hot cone for replenishing. All have wire handle to cone and inverted bellows

Size of Barrel	Name	Each.
4- inch,	Smoke-Engine,	$2 30
3½- "	Doctor,	1 60
3- "	Conqueror,	1.40
2½- "	Large,	1 20

Acme Smoker.

No. 1—2¾ inch barrel, cold blast smoker, throws large volume of smoke at right angles to the fire box without a curved nozzle to lessen the blast, . . Each, $0 90



Higginsville Smoker.

igginsville Smoker—Hot blast, 3½-inch fire box, nozzle throws back to admit filling or cleaning, . . . Each, $1.20

Bee Brushes.

Bee Brushes—A fine and elastic Whisk-broom nearly 14 inches long, for brushing bees—especially to brush them from combs before extracting, ... Each, $0 24

Bee Gloves.

Oil Duck Gloves.

Men or Ladies' size, fingerless, ... Per Pair, $0.60
Men or Ladies' size, long, ... " .60

Rubber Gloves.

Sizes 8 and 9, ... Per Pair, $2.40
Sizes 10, 11, and 12, ... " 2.50
Sizes 13 and 14, ... " 3.00

Bee Veils.

No. 1—Cotton Tulle Veil, with silk face; rubber cord in top to fit around hat; lower edge bound, . . . Each, $0.80

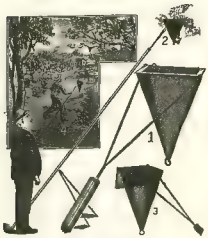
Five cross bars are rivited in the center at the top. These bend down and button to studs on a neck-band. The bars are best light spring steel. The neck-band is hard spring brass. The netting is white with face-piece of black to see through.

It is easily put together and folds compactly in a case, 1x6x7 inches, —the whole weighing but 5 ounces. It can be worn over an ordinary hat, fits any head; does not obstruct the vision, and can be worn in bed without discomfort. It is a boon to any one whom flies bother, mosquitos bite, or bees sting.

Globe Bee Veil, ... Each, $1.50

Bee Keepers' Supplies.

Manum's Swarm-Catcher.



Manum's Swarm Catcher—With pole . . . . Each, $1 80
Manum's Swarm Catcher—Without pole, . . . " 1.30

Wire Imbedders and Foundation Rollers.

Cut showing use of Spur Imbedder.

Spur Imbedder—For imbedding the wire into the foundation, ... Each, $0.24

This is a half-round rocking wheel 7 inches in diameter, on a handle with projecting teeth. By rocking the tool over the wires of a wired frame resting on a sheet of foundation previously fastened to the comb-guide, the teeth imbed the wire into the foundation without marring it.

Easterday Embedder—All tin, ... Each, $0.22
Daisy Foundation Roller—Wood, ... " .24

Uncapping Knives.

Bingham Uncapping Knives—Wood handles, steel blades, ... Each, $1.10

Honey Knives.

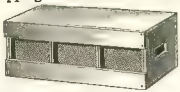
Novice Honey Knives—Ebony handles, steel blades, ... Each, $1.30

Comb Buckets.

Comb Buckets—Capacity, 5 L frames, ... Each, $2.20

The frames hang in these the same as in the hive. These buckets are very convenient while extracting dividing colonies, or making nucleus to carry combs in.

Shipping Cases for Comb Honey.



No-Drip Shipping Cases, Complete with Glass, Paper and Nails.

These cases are for sections 4¼x4¼, or any regular size. State when ordering how wide your sections are.

Capacity, ...	12 lbs.	24 lbs.
In lots of 50, Per 100, . . .	$18 50	30 00

24 lb. cases, furnished in single or double tier.

Marketing honey in the same crate that is used on a hive is one of the mistakes of bee keeping. Comb honey, put up in a nice, clean, attractive crate, will bring from 1 to 2 cents more per pound, than when packed in an unattractive manner. Most of our crates are made of snow white basswood, except the bottoms and backs, which are not visible when set on a counter

Honey Extractors.

Cowan's Rapid Reversible Honey Extractor.

New Side Gear Novice Honey Extractor.

Cowan's Rapid Reversible, Galvanized Iron, Nickel Plated Gear.

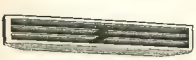
Two-Frame Cowan For Langstroth frame, diameter of can 20 inches; weight, 70 lbs., ... Each, $19.60
Four Frame Cowan—For Langstroth frames; diameter, 28 inches; weight, 150 lbs., ... Each, 39.00
Novice's Honey Extractor—For Langstroth frame; weight, 45 lbs., ... Each, 14.40
Novice's Honey Extractor—For American frame; . . . . . Each, 16.20

Bee Books.

The Amateur Bee Keeper, an 80-page book for beginners, by Prof. J. W. Rouse, ...	$ 30
Advanced Bee Culture, by W. Z Hutchinson, ...	1 60
Doolittle on Queen Rearing, ...	1 50
Langstroth on the Honey Bee—Revised by Dadant, ...	1 60
The A. B. C. of Bee Culture, by A. I. Root, ...	1 60

Bee Keepers' Supplies.

Bee Feeders.

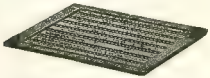


Simplicity.

Hill's.

Simplicity Bee Feeder, ... Each, $0.12
Hill Bee Feeder, ... " .16

Queen Excluding Honey Boards.



Wood and Zinc, 8 Frame, Nailed, ... Each, $0.40
Wood and Zinc, 10 Frame, Nailed, ... " .44
Wood Bound Zinc, 8 Frame, ... " .32
Wood Bound Zinc, 10 Frame, ... " .36
Zinc Strips—19x84, perforated, ... " 1.40

Zinc Strips, perforated, 2 rows of holes, ... Per 100, 2.00

Bee Entrance Guards.

12 Inch long, for 8 frame hives, ... Each, $0.14
14½ Inch long, for 10 frame hives, ... " .14

These are placed in front of entrances for various purposes. They may be used in swarming time to prevent the queen from going out or on the hives whose drones are not such as you want to breed from at a time when you are rearing queens. They may be used in ridding the hive of undesirable drones by placing on the hive and shaking all the bees in front allowing the workers to pass in, while the drones are left on the outside and then destroyed

Comb Foundation.

In lots of 25 pounds
Per Pound.

Medium Brood, 8½ inches, 7 sheets per pound, ... $0.92
Light Brood, 8x16½ inches, 9 sheets per pound, ...96
Thin Surplus, 3⅞x16½ inches, 27 sheets per pound, . . 1.04
Extra Thin Surplus, 3⅞x16½ inches 31 sheets, per pound, 1.10

Medium brood and light brood foundation is for use in the brood frames. Thin and extra thin surplus is for use in the section honey boxes

West's Queen Cell Protector.

West's Queen Cell Protector, ... Per 100, $ 3.00
West's Spiral Cage, ... " 10.00

Queen Cages.

Benton Queen Cages, ... Per 100, $4.00

Drone and Queen Traps.

Cut showing front view of Alley's Drone and Queen Trap.

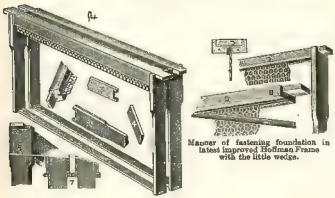
Cut showing back view of Alley's Drone and Queen Trap.

Alley's Drone and Queen Traps, ... Each, $0.70

This style is quite an improvement over the old style, and can be used as a self-hiver with very little change.

Bee Keepers' Supplies.

Brood Frames.

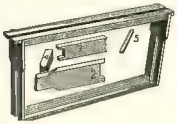


Manner of fastening foundation in latest improved Hoffman Frame with the little wedge.

Hoffman Self-Spacing.

Hoffman Self-Spacing Frames are the most popular. The end bars are so constructed as to make the frame self-spacing. The top bar contains two groves in the under side. The foundation is placed in the center grove and a wedge is crowded in the other, which secures the foundation firmly in place, ... Per 100, $4.40

Weight per hundred 35 pounds.

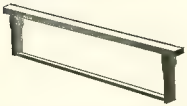


Thin Top Hoffman Frames.

Hoffman Thin Top Frames are self-spacing and similar in construction to the regular Hoffman frames except the top bar is thinner, ... Per 100, $4.00

Weight per hundred, 35 pounds.

Shallow Extractor Frames.



Shallow Extractor Frames These are made the same as the thin top bar Hoffman frame, and are just deep enough to be used in a half-story dovetailed super and can be little extracting frames, ... Per 100, $3 40

Weight per hundred, 20 pounds.

Plain Division Boards.

One of these boards is included with every dovetailed and telescope hive and is used as a follower with the frames It has the same outside dimensions as the brood frames and is $\frac{5}{8}$ of an inch thick

Plain Division Boards, ... Per 100, $10 00

Follower Boards.

Super Followers, with wedges. Cleats fastened on end to prevent warping, ... Per 100, $8 00

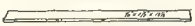
Section Holders.

Section Holders are used in the dovetailed and telescope hives. The bottoms are $\frac{1}{4}$ inch thick, $1\frac{1}{4}$ inch wide, with insets corresponding to those in the sections. They have no top bars.

We can furnish the following widths in section holders, 2, $1\frac{13}{16}$, $1\frac{5}{8}$, $1\frac{1}{2}$ and $1\frac{1}{4}$ inches. In ordering section holders, if you do not state size wanted, we always send them $1\frac{7}{8}$ inches wide, which are for $4\frac{1}{4}$x$4\frac{1}{4}$x$1\frac{7}{8}$ scalloped stand ard sections

Scalloped Section Holders—Any size, ... Per 100, $3.40
Plain Section Holders—Any size, ... " 2 70

Section Slats.



Scalloped Slats cut same shape as sections and are $\frac{3}{8}$ inch thick. Plain Slats are used for plain sections.

If you do not state what width you want, we send them $1\frac{7}{8}$ inches wide.

Section Slats—Scalloped, ... Per 100, $1.70
" " —Plain, ... " 1.70

Wood Separators.

Scalloped Separators—$4\frac{1}{4}$x$18\frac{1}{4}$ inches. For supers of dovetailed hives, ... Per 100, $1.70
Plain Separators—$3\frac{1}{4}$x$18\frac{1}{4}$ inches, ... " 1.10

T Tins.

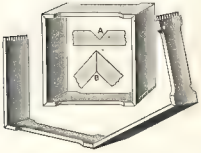
T Tins—12 and 14 inches long, ... Per 100, $1.70
T Tins—Over 14 inches, to 16 inches long, . . . " 1.90
T Tins—Over 16 inches, to 20 inches long, . . . " 2.50

Flat Tins.

Flat Tins—14 inches long and under $\frac{5}{8}$ inch wide, ... Per 100, $0.70
Flat Tins—14 inches to 20 inches, ... " .90

Bee Keepers' Supplies.

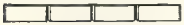
Section Honey Boxes.



Cut showing Comb Foundation Starter attached to Section Box.

One piece section, open one side.

One piece section, open two sides.



One piece section, plain.

Standard Sections.

The $4\frac{1}{4}$x$4\frac{1}{4}$ is the standard section The following widths of this size are carried in stock: 2, $1\frac{3}{8}$, $1\frac{1}{2}$, $1\frac{3}{4}$, 7 to the foot, and $1\frac{1}{2}$. In ordering these standard sections, if you do not state width and style wanted, we always send them $1\frac{3}{4}$ wide and open top and bottom, as per cut No. 2.

Plain Sections—No Beeways.

The following plain or no beeway sections are also carried in stock: $4\frac{1}{4}$x$4\frac{1}{4}$x$1\frac{1}{2}$, $1\frac{3}{4}$, or $1\frac{7}{8}$, 4x5x$1\frac{3}{8}$ and $3\frac{3}{8}$x5x$1\frac{1}{2}$. In ordering plain sections, if you do not state what size is wanted, we always send $4\frac{1}{4}$x$4\frac{1}{4}$x$1\frac{1}{2}$ inches.

NOTE.—In ordering sections $1\frac{1}{2}$ or $1\frac{3}{8}$ inches wide, be sure to state whether same are to be beeway or no beeway, as we carry them in both styles. If you do not state which style you desire we always send the no beeway. In all other sizes the open top and bottom is sent when style is not specified.

Odd-Sized Sections.

We also furnish odd-sized sections in lots of 500 or more. In ordering sections which are not square, always state which way they are to stand, whether on the long side, thus, ▬, or on the short side thus ▌ Always give the exact outside measure and width wanted, and say how many sides you wish open.

Always order odd sections early. We cannot get out special work during rush season.

Grades.

Our sections are sorted into two grades, viz.: No. 1 and No 2 The sorting of these sections is one of the most important points to be considered in the quality. Both grades go through the same process of manufacture, including polishing both sides. The No. 1 grade is very carefully selected from the best lumber and is perfect in every respect. The No. 2 grade consists of those sections which are somewhat stained or have some other slight imperfection.

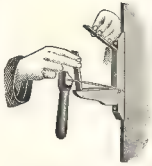
Grade No. 1—$4\frac{1}{4}$x$4\frac{1}{4}$x$1\frac{1}{2}$ to $1\frac{7}{8}$ inches wide, . . . Per 1000 $8.50
Grade No. 2 $4\frac{1}{4}$x$4\frac{1}{4}$x$1\frac{1}{2}$ to $1\frac{7}{8}$ " " . . . " 7.50

Plain sections, no beeways, 25c per 1,000 less than the above prices.

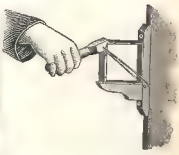
Sections are regularly crated in lots of 500.

Average weight of 1,000 beeway sections is 70 lbs and of plain sections 60 lbs.

Section Presses.



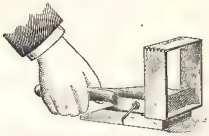
Cut showing how to place the partly folded section box in the little press.



Cut showing how the lever is brought up for the purpose of locking the corners and squaring the section.

Section Press—Higginsville, ready to attach to a bench or some upright, ... Each, $0.80

Foundation Fasteners.



Parker's Foundation Fastener, for fastening comb foundations into sections by hand with a lever pressure.

Parker's—$4\frac{1}{4}$ inch, ... Each, $0 40
Parker's—Odd size, ... " .60

Daisy.

Daisy With Lamp, $4\frac{1}{4}$ inch, ... Each, $1.60
Daisy—Without Lamp, $4\frac{1}{4}$ inch, ... " 1.20

One in a crate, weighing 10 pounds.

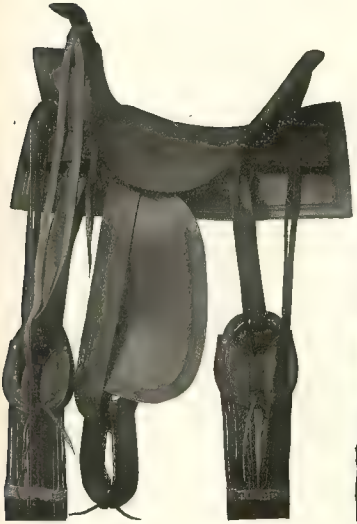
DIVISION No. 5.

SADDLES, HARNESS, SADDLERY HARDWARE.

BLISH, MIZE & SILLIMAN HARDWARE CO.,

ATCHISON, KANSAS.

Saddles.



No. 1510.

Tree	—15 inch, steel (bulge) fork.
Skirts	—11½x23½ inch.
Stirrup Leathers	—2½ inch, laced.
Tie Straps	—1⅜ inch.
Buckle Straps	—1½ inch.
Cinchas	—15 strand, California grey hair, leathered, 2 tongues.
Stirrups	—2 inch, ox bow, leather bottom. Roll cantle, full seat, covered rings, under rig.

No. 1510—Felt lined, double cinchas, ...Each, $27.40

No. 1510—Wool lined, double cinchas, ... " 29.00

Weight, 21 pounds.

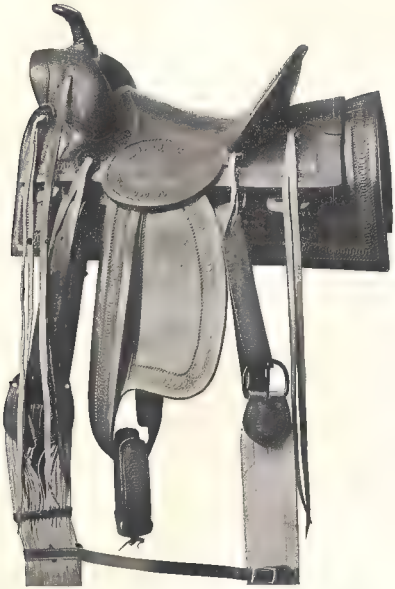
No. 1530.

Tree	—15½ inch, steel fork, hide covered.
Skirts	—12½x24 inch, wool lined.
Stirrup Leathers	—2½ inch, laced.
Tie Straps	—1⅜ inch.
Buckle Straps	—1½ inch.
Cinchas	—5 inch, Mexican hair, 2 tongues.
Stirrups	—2 inch, ox bow. Bound cantle, full seat, covered rings, front and rig in one piece.

No. 1530—Double cinchas, ...Each, $31.00

Weight, 24 pounds.

Saddles.



No. 1645.

Tree —16 inch, "Billings," steel fork, beef hide covered, braided horn.

Skirts —16x30 inch, wool lined.

Stirrup Leathers—3 inch, laced.

Tie Straps —1¼ inch x 7 foot.

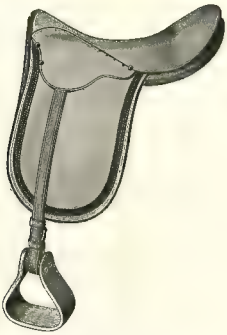
Buckle Straps —2¼ inch.

Cinches 58 strand, hard twisted cotton and 4 inch 3 ply belt web, tongues leathered and connected.

Stirrups -Leather covered, bevel ox bow. Hand stitched, bound cantle, full stamped border, full stamped front and cantle, full seat, under rig.

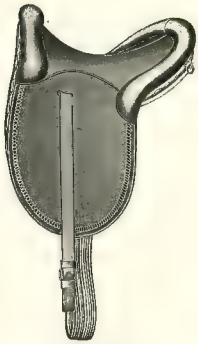
No. 1645 -Weight, 45 lbs., ... Each, $75.50

Saddles.



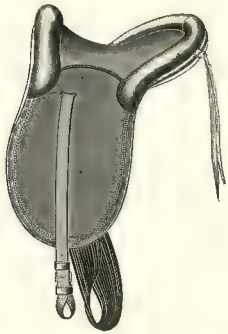
Somerset Tree.

No. 77—SOMERSET, made on a 15½x11½ inch tree, solid plain seat, trimmed skirt, oil cloth pad lined with Osnaburg, ⅞ inch stirrup leathers; wt., 6 lbs., . Each, $4.50



Stitchdown.

No. 62—STITCHDOWN, made on a 17x13½ inch Somerset tree, front and back roll, plain seat, sheepskin pad lined with linsey, 1⅛ inch stirrup leathers, and buckle girth; wt., 14 lbs., ...Each, $16.50



Leather Tree.

No. 58—17 inch leather tree, roll on cantle and front, solid plain seat, russet leather, 24 inch skirt, pad lined with kersey, 1⅛ inch stirrup leathers, and draw girth; wt., 16 lbs., ... Each, $21.00

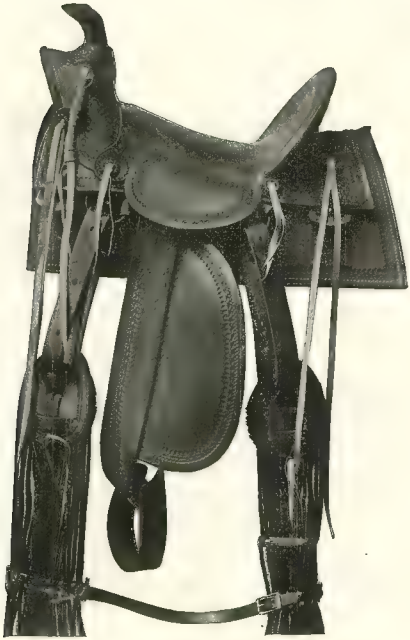
No. 58—With housing, otherwise same as above . " 23.00

Ladies' Astride, with Nickel Horn.

No. 94—17 inch tree, front and back roll, nickel horn, sheepskin pad lined with kersey, calf seat star stitched and hand raised, 1½ inch stirrup leathers, and draw girth; wt., 17 lbs., ... Each, $26.50

No. 94—Without housing, ... " 24.50

Saddles.



No. 1585.

Tree —15½ inch, "Portland," steel fork, hide covered.
Skirts —13½x26½ inch, wool lined.
Stirrup Leathers—3 inch, laced.
Tie Straps —1⅝ inch.
Buckle Straps —1¾ inch.

Cinchas -15 strand, California grey hair, tongues, leathered and connected.

Stirrups—2 inch, bevel, ox bow.
Bound cantle, covered rings, full seat, under rig, checker stamp front and cantle.

No. 1585—Double cinchas; weight, 29 lbs., ... Each, $43.50

Saddles.

No. 1460.

Tree	—13½ inch, steel fork.
Skirts	—10x21½ inch, felt lined.
Stirrup Leathers	—1¼ inch.
Tie Straps	—1 inch.
Cinchas	—16 strand, white cotton Texas.
Stirrups	—3 inch, wood.
	Roll cantle, horn rig.

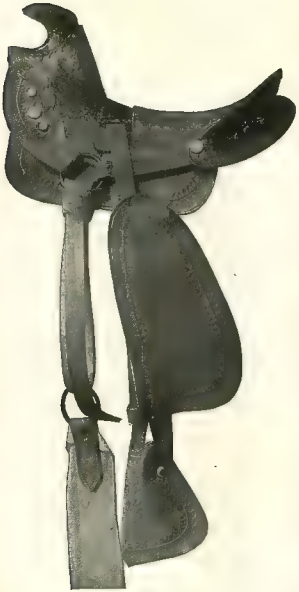
No. 1460—Double cinch; weight, 14 lbs., ...Each, $15.50

No. 1475.

Tree	—14½ inch, steel fork.
Skirts	—10½x21½ inch, felt lined.
Stirrup Leathers	—2 inch, laced.
Tie Straps	—1¼ inch.
Buckle Straps	—1⅜ inch.
Cinchas	—16 strand, white cotton Texas, 1 tongue.
Stirrups	—3 inch, wood.
	Bound cantle, covered rings, full seat.
	Lined jockeys.

No. 1475—Double cinchas; weight, 17 lbs., . . . Each, $19.20

Saddles.



No. 1420 Boys' Horn Saddle.

Tree —11 inch, horn Morgan, hide covered.
Stirrup Leathers—1 inch.
Tie Strap —1 inch.
Girth —Cotton, ring.
Stirrups —2½ inch, boys', wood, with boots.
Tacked seat and skirt.
Single Rig.

No. 1420—Weight, 8 lbs., ... Each, $8.50

No. 1430.

Tree —13 inch, horn Morgan, hide covered.
Stirrup Leathers—1 inch.
Tie Straps —1 inch.
Girth —Cotton, ring.
Stirrups —3 inch, wood.
Tacked seat and skirt.
Single Rig.

No. 1430—Weight, 10 lbs., ... Each, $8.00

Saddles.

No. 1485.

Tree	—14½ inch, steel fork.
Skirts	—11x22 inch, felt lined.
Stirrup Leathers	—1¼ inch.
Tie Straps	—1¼ inch.
Cinchas	—16 strand, white cotton, Texas.
Stirrups	—3 inch, wood. Roll cantle, covered rings, full seat.

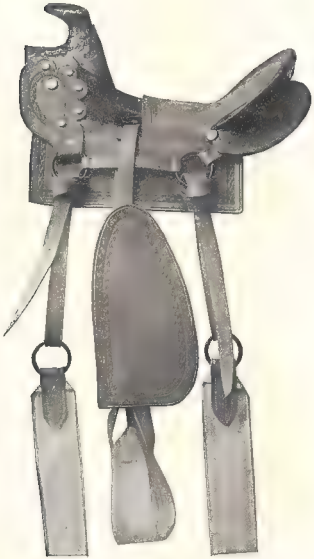
No. 1485—Double cinchas; weight, 18 lbs., . . . Each, $20.90

No. 1500.

Tree	—15 inch, steel fork.
Skirts	—12x23 inch, wool lined.
Stirrup Leathers	2 inch, laced.
Tie Straps	—1¼ inch.
Buckle Straps	—1½ inch.
Cinchas	—16 strand, white cotton, Texas.
Stirrups	—4 inch, wood. Roll cantle, covered rings, under rig, ful. seat.

No. 1500—Double cinchas; weight, 21 lbs., . . . Each, $24.70

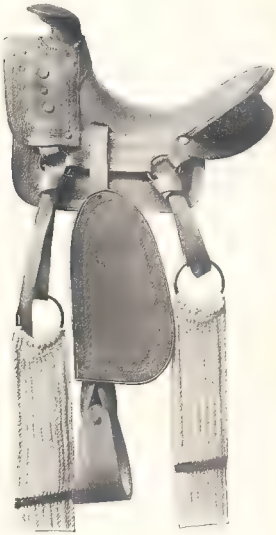
Saddles.



No. 1435.

Tree	—13 inch, horn Morgan, hide covered.
Stirrup Leathers	—1 inch.
Tie Straps	—1 inch.
Girth	—Cotton, ring.
Stirrups	—Wood.
	Tacked seat and skirt.
	Double rig.

No. 1435—Weight, 12 lbs., ... Each, $9.50

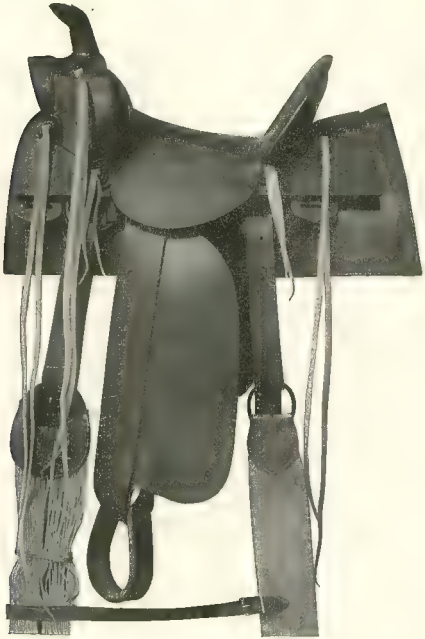


No. 1455.

Tree	—13½ inch, horn Morgan.
Stirrup Leathers	—1½ inch.
Tie Straps	—1 inch.
Cinchas	—16 strand cotton, Texas.
Stirrups	—Wood.
	Full leather seat, bound cantle, double rig, felt lined bars.

No. 1455—Weight 11½ lbs., ... Each, $11.00

Saddles.

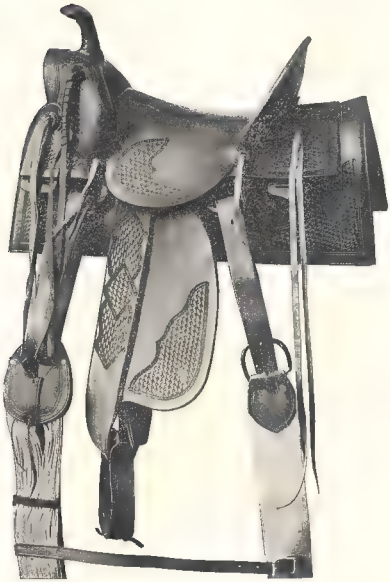


No. 1635.

Tree —16 inch, "Billings" steel fork, beef hide covered, braided horn.
Skirts —15x29 inch, wool lined.
Stirrup Leathers—3 inch, laced.
Tie Straps —1¾ inch x 7 foot.
Buckle Straps —2¼ inch.
Cinchas —58 strand, hard twisted cotton, and 4 inch 3ply belt web, tongues leathered and connected.
Stirrups—Brass bound, ox bow.
Hand stitched, bound cantle, full seat, covered rings, under rig, made plain, no stamping or creasing.

No. 1635—Weight, 44 lbs., ... Each, $68.00

Saddles.



No. 1620.

Tree —15$\frac{15}{16}$ inch, "Red Cloud," steel (bulge) fork, hide covered, raw hide bra ded horn.
Skirts —14x27½ inch, wool lined.
Stirrup Leathers—3 inch, laced.
Tie Straps —1¾ inch.
Buckle Straps —1¾ inch.

Cinchas 58 strand, hard twisted cotton, and 4 inch No. 1 web, tongues, leathered and connected.
Stirrups Leather covered, iron.
Basket stamped corners, stirrup leather and cantle, raw hide bound cantle, covered rings, full seat, under rig.

No. 1620—Double cinchas; weight, 33 lbs., ... Each, $51.70

Saddles.

No. 1570.

Tree	—15½ inch, "La Platte," steel fork, hide covered
Skirts	—13x27 inch, wool lined.
Stirrup Leathers	-3 inch, laced.
Tie Straps	—1⅝ inch.
Buckle Straps	—1⅛ inch.
Cinchas	—15 and 20 strand, California grey hair, tongues, leathered and connected.
Stirrups	—2 inch, ox bow. Bound cantle, covered rings, full seat, top rig.

No. 1570 —Double cinchas; weight, 27 lbs., . . . Each, $38.80

No. 1540.

Tree	—15½ inch, "La Platte," steel fork, hide covered.
Skirts	—12½x24½ inch, wool lined.
Stirrup Leathers	—3 inch, laced.
Tie Straps	—1½ inch.
Buckle Straps	—1⅝ inch.
Cinchas	—15 strand, California grey hair, 2 tongues.
Stirrups	—2 inch, ox bow. Roll cantle, covered rings, full seat, horn rig.

No. 1540 —Double cinchas; weight, 26 lbs., . . . Each, $33.50

Scrapers, Gauges and Roofing Brackets.

Cabinet Scrapers.

No. 80 STANLEY's, japanned, length 11 ins., $2\frac{3}{4}$ in. cutter; wt., $1\frac{3}{4}$ lbs.,. . . . . Each, $1.00

Raised handles; blades may be sprung to a slight curve by lowering thumbscrews.

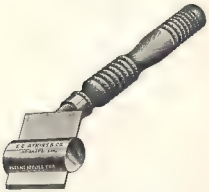
One in a box.

Extra Quality, Polished.

Ins.,.	$2\frac{1}{2}$x5	3x6	$3\frac{1}{2}$x5
Per Dozen, ...	$1.00	1.20	1.20

One dozen in a box.

Floor Scrapers.



Perfection, ATKINS', 9 in., 3x3 in. adjustable steel blade; wt. per dozen, 9 lbs.,. . . . . Per Dozen, $10 00

Half dozen in a box.

Wood Scrapers.

No. 83—3 in., cast steel polished blade, nickel-plated frame, $9\frac{1}{2}$ in. beechwood handle, adjustable wood roller; wt., 1 lb., ...Each, $1.00

One in a box.

Cornering Irons.

No. 28—STANLEY's, $5\frac{3}{4}$x$\frac{3}{4}$ inch, flat steel, $\frac{1}{16}$ and $\frac{1}{8}$ in. cutters,. . . . . Per Dozen, $4.40

No. 29—STANLEY's, $5\frac{3}{4}$x$\frac{7}{8}$ inch, flat steel, $\frac{1}{4}$ and $\frac{3}{8}$ in. cutters, ... Per Dozen, 4.40

Half dozen in a box.

Jointer Gauges.

To Attach to Either Iron or Wood Planes.

Perfection, steel, japanned, small parts nickel-plated; wt. per doz., 8 lbs., ...Per Dozen, $18.00

One in a box.

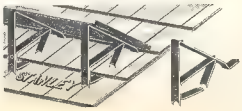
Chisel Gauges.

No. 96 STANLEY's, adjustable, steel stock, $2\frac{1}{2}$ in.; wt. per doz., 6 lbs., ... Per Dozen, $3.60

Attach to a $\frac{3}{4}$ inch chisel (with bevel edge up) and a shaving of any desired thickness can be raised, for blind-nailing or for inlaying of wood strips in ornamental surface work.

One dozen in a box.

Roofing Brackets.



No. 1—STANLEY's, steel, japanned, 8 in., . . Per Dozen, $4.00

Half dozen in a box; weight per dozen, 14 pounds.

Stanley's Patent Adjustable Planes.

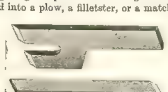
Traut Filletster, Plow, Dado, Etc.

No. 46—Nickel-plated, iron stock and fence, with 11 tools, bits, etc.; wt., 5½ lbs., ...Each, $7.00

This tool consists of two sections—a main stock with two bars or arms, and a sliding section, having its bottom or face level with that of the main stock.

It can be used as a dado of any required width by inserting the bit into the main stock and bringing up the sliding section snugly to the edge of the bit. The two spurs—one on each section of the plane—will thus be brought exactly in front of the edges of the bit. The gauge on the sliding section regulates the depth to which the tool will cut.

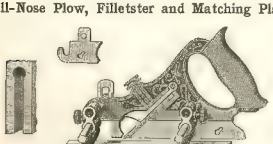
By attaching the guard plate to the sliding section, the tool may be readily converted into a plow, a filletster, or a matching plane.



The tool has eight plow and dado bits (1/16, ⅛, 3/16, ¼, ½, ⅝, ¾ and 1¼ inch), a filletster cutter, a slitting tool and a tonguing tool. All except the slitting blade are secured in the main stock at an angle.

One in a box.

Bull-Nose Plow, Filletster and Matching Plane.



No. 143—Nickel-plated, iron stock and fence, with 10 tools, bits, etc.; wt., 4½lbs., ... Each, $5.00

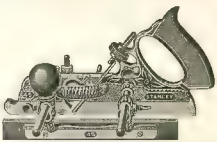
No. 141—Nickel-plated, iron stock and fence, with 10 tools and a filletster; wt., 5 lbs., ... Each, 7.00

Two interchangeable front parts go with this tool. The form shown is that of a bull nose plow, and the cutter will easily work up to and into a ½ inch hole, or any larger size—as in sash fitting, stair work, etc. With the other front on, it takes the ordinary form of a plow and is adapted to all regular uses.

With each tool eight plow bits (⅛, 3/16, ¼, 5/16, ⅜, 7/16, ½ and ¾ inch), a filletster cutter and a slitting blade are furnished; also a tonguing tool (½ inch).

One in a box.

Beading, Rabbet and Slitting.



No. 45—Nickel-plated, iron stock and fence, with 20 tools, bits, etc.; wt., 9 lbs., ... Each, $8.00

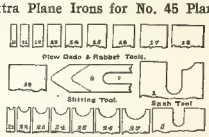
This plane embraces, in a compact and practical form; beading and center beading plane, sash plane, rabbet and filletster, dado, plow, matching plane, and a superior slitting plane.

In each of its several forms this plane will do perfect work, even in the hands of an ordinary mechanic—its simplicity of construction and adaptation of parts being easily understood.

Each plane has seven beading tools (⅛, 3/16, ¼, 5/16, ⅜, 7/16 and ½ inch), ten plow and dado bits (⅛, 3/16, ¼, 5/16, ⅜, 7/16, ½, ⅝ and ¾ inch)), a slitting blade, a sash tool and a tonguing tool.

Of the cutters for plane No. 55 shown on the following page, Nos. 2, 6, 9, 28, 29, 31, 32, 33, 34, 35, 36, 37, 38, 212, 213, 214, 215, 222, 223, 224, 225, 232, 233, 234 and 235, in addition to the twenty sold with the plane, will work in plane No 45. The other cutters for No. 55 *can not* be used in No. 45

Extra Plane Irons for No. 45 Planes.



In ordering, always state size and number of beads wanted.

No. 45	Plane irons in sets of 20, ...	Each,	$3.00
No. 5	—Nosing tool, with 1½ in. cutter, ...	"	1.00
No. 2	—Reeding tools, 2 beads, ⅛, 3/16 or ¼ in., . . .	"	.20
No. 3	—Reeding tools, 3 beads, ⅛, 3/16 or ¼ in., . . .	"	.30
No. 4	—Reeding tools, 4 beads, ⅛, 3/16 or ¼ in., . . .	"	.40
No. 5	—Reeding tools, 5 beads, ⅛, 3/16 or ¼ in., . . .	"	.50

Hollows and Rounds for No. 45 Planes.

These additional parts, for working hollows and rounds, can be attached to any No. 45 plane, but they are not included in the regular assortment of parts sent out with the plane.

The full width of each cutter is indicated in the following list and also the full diameter of the circle to which each cutter will work an arc. The numbers correspond with the regular lists of common hollows and rounds.

Nos., ...	6	8	10	12
Cutter, ins. wide, . . .	½	⅝	1¼	1
Works circle, ins.,. . .	¾	1	1½	1¾
Per Pair, ...	$1.40	1.40	1.40	1.40

One in a box.

Bailey's Adjustable Bench Planes.

Wood.

No. 21 7 in. smooth, 1¾ in. cutter; wt. 2 lbs. . Each, $1.35
No. 22—8 in. smooth, 1¾ in cutter; wt., 2¼ lbs., . " 1.35
No. 23 9 in. smooth, 1¾ in. cutter; wt., 2¾ lbs., . " 1.35
No. 24—8 in. smooth, 2 in. cutter; wt., 2¾ lbs., . " 1.35
No. 25 -9½ in. block, 1¾ in. cutter; wt., 3½ lbs., . " 1 35
One in a box.

No. 35—9 in. handled smooth, 2 inch cutter; weight, 3 lbs., ... Each, $1.70
No. 36—10 in. handled smooth, 2⅜ inch cutter; weight, 3⅜ lbs., ... Each, 1.85
No. 37 -13 in. jenny smooth, 2⅜ inch cutter; weight, 5 lbs., ... Each, 2.00
One in a box.

No. 26 —15 in. jack, 2 in. cutter; wt., 3⅜ lbs., . Each, $1.50
No. 27 —15 in. jack, 2⅜ in. cutter; wt., 4 lbs., . " 1.70
No. 27½—16 in. jack, 2½ in. cutter; wt., 4½ lbs., . " 1.70
One in a box.

No. 28—18 in. fore, 2⅜ in. cutter; wt., 5 lbs., . . Each, $1.85
No. 29—20 in. fore, 2⅜ in. cutter; wt., 5⅜ lbs., . . " 1.85
One in a box.

No. 30 22 in. jointer, 2⅜ in. cutter; wt., 6 lbs., . Each, $2.00
No. 31—24 in. jointer, 2⅜ in. cutter; wt., 6½ lbs., . " 2.00
No. 32—26 in. jointer, 2⅜ in. cutter; wt., 7 lbs., . " 2.20
No. 33—28 in. jointer, 2⅜ in. cutter; wt., 7½ lbs., . " 2.20
No. 34—30 in. jointer, 2⅜ in. cutter; wt., 8 lbs., . " 2.35
One in a box.

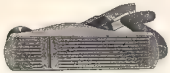
Iron.

No. 1 — 5½ in. smooth, 1½ in. cutter; wt., 1 lb., . Each, $1.50
No. 2 7 in. smooth, 1⅝ in. cutter; wt., 2 lbs., " 1.85
No. 3 — 8 in. smooth, 1¾ in. cutter; wt., 3 lbs., " 2.00
No. 4 — 9 in. smooth, 2 in. cutter; wt., 3½ lbs., " 2.20
No. 4½—10 in. smooth, 2⅜ in. cutter; wt., 5 lbs., " 2.50
One in a box.

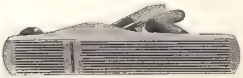
No. 5 14 in. jack 2 in. cutter; wt., 4½ lbs., . . Each, $2.50
No. 5½—15 in jack 2⅜ in. cutter, wt., 6 lbs., " 2.85
No. 6 -18 in. fore 2⅜ in. cutter; wt., 7 lbs., . . " 3.20
One in a box.

No. 7—22 in. jointer, 2⅜ in. cutter; wt., 8 lbs., . . Each, $3.65
No. 8—24 in. jointer, 2⅜ in. cutter; wt., 9½ lbs., . . " 4.35
One in a box.

Corrugated Bottom Iron.



No. 2C — 7 in. smooth, 1⅝ in. cutter; wt., 2¼ lbs., Each, $1.85
No. 3C — 8 in. smooth, 1¾ in. cutter, wt., 3 lbs., " 2.00
No. 4C — 9 in. smooth, 2 in. cutter; wt., 3½ lbs., " 2 20
No. 4½C—10 in. smooth, 2⅜ in. cutter; wt., 5 lbs., " 2 50
One in a box.



No. 5C —14 in. jack, 2 in. cutter; wt., 4½ lbs., . Each, $2.50
No. 5½C --15 in. jack. 2¼ in. cutter, wt., 6 lbs., . " 2.85
No. 6C —18 in. fore, 2⅜ in. cutter; wt., 7 lbs., . " 3.20
No. 7C —22 in. jointer, 2⅜ in. cutter; wt., 8 lbs., " 3.65
No. 8C —24 in. jointer, 2⅜ in. cutter; wt., 9½ lbs., " 4.35
One in a box.

Wood Planes.

Ohio Tool Co.'s Bench.

Smooth.

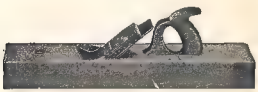
No. 03—8 inch smooth, 2 to 2½ inch cast steel double irons, polished start; weight, 3 lbs., ... Each, $0.90

Thirty-six in a case.

Jack.

No. 015—16 inch jack, 2 to 2½ inch cast steel double irons, polished start; weight, 4 lbs., ... Each, $1.00

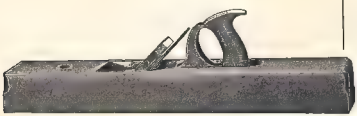
Thirty-six in a case.



Fore.

No. 021—22 inch fore, 2⅜ to 2¾ inch cast steel double irons, polished start; weight, 5½ lbs., ... Each, $1.70

Twenty-four in a case.



Jointer, Double Iron, Polished Start.

No. 027—26 inch jointer, 2½ to 2¾ inch, wt., 7½ lbs., Each, $1.80
No. 027—28 inch jointer, 2½ to 2¾ inch; wt., 8½ lbs., " 1.90
No. 027—30 inch jointer, 2½ to 2¾ inch; wt., 9½ lbs., " 2.15

Twenty in a case.

Ohio Tool Co.'s Fancy.

Skew Rabbet.

No. 116 Sizes ½ and ¾ inch; weight, 1 lb., ... Each, $1.00
No. 116—Sizes ⅛, ¼, ⅜ and 1 inch; weight, 1 lb., ... " .60
No. 116 Size 1¼ inch; weight, 1½ lbs. . . . . " .65
No. 116—Size 1½ inch; weight, 1½ lbs., ... " .70
No. 116—Size 1¾ inch; weight, 1¾ lbs., ... " .80
No. 116—Size 2 inch; weight, 1¾ lbs., ... " .90
No. 116—Size 2½ inch; weight, 2 lbs., ... " 1.00

Specify both size and number in ordering.
One in a package.

Skew Rabbet, with Handle and Two Cutters.

No. 119—Sizes 1¼, 1½ and 2 inch; weight, 3 lbs., . Each, $1.70
No. 119 Sizes 2¼ and 2½ inch; weight, 3 lbs., . . " 2.00

Specify both size and number in ordering.
One in a package.

No 47 Dado. No. 55 Filletster

Dados.

No. 47 Brass side stop, sizes ¼, ⅜, ⅝, ¾, ⅞ and 1 inch; weight, 1½ lbs., ... Each, $1.10

Specify both size and number in ordering.
One in a package.

Filletster.

No. 55—Size 1¼ inch, with cutter, screw stop, boxed; weight, 2¾ lbs., ... Each, $2.50

One in a package.

One pair No. 75.

Board Match.

No. 75—Twin or separate, sizes ⅜, ½, ⅝, ¾, ⅞ and 1 inch, weight, 2¼ lbs., ... Per Pair, $1.50
No. 76 Twin or separate, plated, sizes ⅜, ½, ⅝, ¾, ⅞ and 1 inch; weight, 2¼ lbs., ... Per Pair, 1.75

Specify both size and number in ordering.
One pair in a package.

Stanley's Adjustable Bench Planes.

Wood.

No. 122—8 in. smooth, 1¾ in. cutter; wt., 2 lbs., . Each, $1.00

One in a box.

No. 135—10 in. handled smooth, 2¼ in. cutter; wt., 3 lbs., ... Each, $1.35

One in a box.

No. 127—15 in. jack, 2⅜ in. cutter; wt., 3½ lbs., . . Each, $1.35
No. 129—20 in. fore, 2⅜ in. cutter; wt., 5 lbs., . . " 1.50
No. 132 26 in. jointer, 2⅜ in. cutter; wt., 6½ lbs., . " 1.70

One in a box.

Iron.

No. 104—9 in. smooth, 2⅜ in. cutter; wt., 3 lbs., . . Each, $1.85
No. 105—14 in. jack, 2½ in. cutter; wt., 4 lbs., . . " 2.35

These planes are made with a wrought steel bottom. This construction gives a metal bottom with a very light weight.

One in a box.

Improved Scrub.

No. 40—9½ in. improved scrub, 1¼ in. cutter, iron stock; wt., 2 lbs., ... Each, $1.00

This tool has a single iron, with the cutting edge rounded, and is particularly adapted for roughing-down work before using a jack or other plane.

One in a box.

Flat Bottom "Bed Rock."

No. 602 — 7 in. smooth, 1⅝ in. cutter; wt., 2½ lbs., Each, $2.15
No. 603 — 8 in. smooth, 1¾ in. cutter; wt., 3 lbs., " 2.30
No. 604 — 9 in. smooth, 2 in. cutter; wt., 3½ lbs., " 2.50
No. 604½—10 in. smooth, 2⅜ in. cutter; wt., 4½ lbs., " 2.90

One in a box.

No. 605 —14 in. jack, 2 in. cutter; wt., 4½ lbs., . Each, $2.90
No. 605½—15 in. jack, 2½ in. cutter; wt., 6 lbs., . " 3 25
No. 606 —18 in. fore, 2⅜ in. cutter; wt., 7 lbs., . " 3.50
No. 607 —22 in, jointer, 2⅜ in. cutter; wt., 8 lbs., " 4.20
No. 608 —24 in. jointer, 2⅜ in. cutter; wt., 9½ lbs., " 5.00

One in a box.

Corrugated Bottom "Bed Rock."

No. 602C — 7 in. smooth, 1⅝ in. cutter; wt., 2½ lbs., Each, $2.15
No. 603C 8 in. smooth, 1¾ in. cutter; wt., 3 lbs., " 2.30
No. 604C - 9 in. smooth, 2 in. cutter; wt., 3½ lbs., " 2 50
No. 604½C—10 in. smooth, 2⅜ in. cutter; wt., 4½ lbs., " 2.90

One in a box.

No. 605C —14 in. jack, 2 in. cutter; wt., 4½ lbs., . Each, $2.90
No. 605½C—15 in. jack, 2½ in. cutter; wt., 6 lbs., . " 3 25
No. 606C 18 in. fore, 2⅜ in. cutter; wt., 7 lbs., . " 3.50
No. 607C —22 in. jointer, 2⅜ in. cutter; wt., 8 lbs., " 4.20
No. 608C —24 in. jointer, 2⅜ in. cutter; wt., 9½ lbs., " 5.00

One in a box.

Fancy Wood Planes.

Ohio Tool Co.'s.

Panel Plows.

No. 97—Beech, with handle, screw stop, boxed fence; weight, 5¾ lbs., ... Each, $6 85
No. 100—Beech, with handle, boxwood arms; weight, 5½ lbs., ... Each, 7.75

One in a package.

Nosing Step.

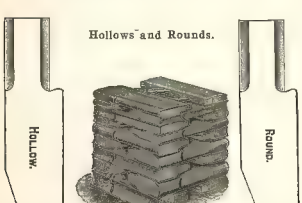
No. 91. No. 92

No. 90—One iron, sizes ¾, ⅞, 1, 1⅛ and 1¼ inch, weight, 1 lb., ... Each, $0.80
No. 90—One iron, sizes 1⅜ and 1½ inch, weight, 1⅛ lbs., ... " 1.00
No. 91—Two irons, sizes ¾, ⅞, 1, 1⅛ and 1¼ inch; weight, 1½ lbs., ... Each, 1.10
No. 91—Two irons, sizes 1⅜ inch; weight, 1½ lbs., ... " 1 20
No. 92—Two irons, with handles, sizes ¾, ⅞, 1, 1⅛ and 1¼ inch; weight, 1⅞ lbs., ... Each, 1 50
No. 92—Two irons, with handles, size 1⅜ inch; weight, 2 lbs., ... Each, 1.75

Specify number and size in ordering.

One in a package.

Hollows and Rounds.



One set No. 72. Nos. 1 to 9.

Nos.,	1	2	3	4	5	6
Width of iron, ins.,	¾	⅞	1	1⅛	1¼	1⅜
Wt. per pair, lbs.,	1	1⅛	1⅛	1⅛	1⅛	1⅛
Per Pair, ...	$1.00	1.00	1.00	1.00	1.00	1 00

Nos.,	7	8	9	10	11	12
Width of iron, ins.,	1	1⅛	1¼	1⅜	1½	1⅝
Wt. per pair, lbs.,	2	2½	2½	2½	2½	3
Per Pair, ...	$1.15	1.15	1.15	1.35	1.35	1.35

No. 72—Sets, 9 pairs, 1 pair each, Nos. 1 to 9, inclusive; weight 15 lbs., ... Per Set, $9.45

One pair in a package.

Side Bead. Center Bead. Quarter Round.

Figure No. 37.

Figure No. 41.

Figure No. 43½

Side Beaded, Single Boxed.

No. 37—Sizes ¼, 5/16, ½, 5/16, ⅝ and ¾ in; weight, 12 oz., . Each, $0.50
No. 37—Sizes ⅝ and ¾ in.; weight, 1 lb., ... " .55
No. 37 Sizes ⅝ and 1 in., weight, 1½ lbs., ... " .70

Center Beaded, Double Boxed.

No. 41—Sizes ¼, 5/16, ½, 5/16, ⅝ and ¾ in.; weight, 12 oz., . Each, $0.60
No. 41—Sizes ⅝ and ¾ inch; weight, 1 lb., ... " .65
No. 41 Sizes ⅝ and 1 inch; weight, 1½ lbs., ... " .80

Quarter Round, or Scotia.

No. 43½ Sizes ¾, 5/16, ⅝ and ½ inch; weight 12 oz., . . . Each, $0.50
No. 43½—Sizes ⅝, ⅞ and 1 inch; weight, 1 lb., ... " .65
No. 43½—Sizes 1⅛ in., weight, 1½ lb., ... " .75

One in a package.

Common Ogee. Reverse Ogee.

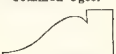


Figure No. 59.

Figure No. 62.

Common Ogee.

No. 59 Sizes ¾, 7/16, ½, ⅝, ⅞ and 1 in.; weight, 1 lb., Each, $0 65
No. 59 Sizes 1⅛ and 1¼ in.; weight, 1½ lbs., ... " .85
No. 59 Sizes 1⅜, 1⅞ and 2 in ; weight, 2 lbs., ... " 1.00

Reverse Ogee.

No. 62—Sizes ¾, ⅞ and 1 in.; weight, 1 lb., ... Each, $0 75
No. 62—Sizes 1⅛, 1⅜ and 1½ in.; weight, 1½ lbs., ... " 85
No. 62—Sizes 1⅞, 1⅞ and 2 in.; weight, 2 lbs., ... " 1.00

One in a package.

Roman Reverse Ogee.

Figure No. 62½.

Figure No. 62½.

Roman Reverse Ogee.

No. 62½ Sizes ¾, 7/16, ½ and ⅝ in.; weight, 1 lb., . . Each, $0 75
No. 62½—Sizes ⅞, ⅞ and 1 in.; weight, 1⅛ lbs., ... " .85
No. 62½—Size 1⅛ in.; weight, 1⅛ lb., ... " 1.00
No. 62½ Size 1⅛ in.; weight, 1⅛ lb., ... " 1.15

Roman Reverse Ogee, with Fence.

No. 62¼—Sizes ¾, 7/16, ½ and ⅝ in.; weight, 1 lb., ... Each, $0.80
No. 62¼—Sizes ⅞, ⅞ and 1 in.; weight, 1⅛ lb., ... " .90

One in a package.

Stanley's Patent Adjustable Planes.

Side Rabbet.

No. 98. No. 99.

No. 98—4 in., right hand; wt., 1 lb., ... Each, $0.90
No. 99—4 in. left hand; wt., 1 lb., ... " 90

A convenient tool for side rabbeting and trimming dados, mouldings, and grooves of all sorts. A reversible nose-piece will give the tool a form by which it will work close up into corners when required
One in a box.

Stanley's Rabbet and Block.

No. 140—7 in., with detachable side, 1⅜ in. cutter; wt., 2½ lbs., ... Each, $1 25

A detachable side will easily change this tool from a block plane to a rabbet plane, or vice versa. The cutter is set on a skew.
One in a box.

Double End Match Planes.

No. 146—Nickel-plated, matches ⅜ in. boards, cuts groove ¼ in.; wt., 2½ lbs., ... Each, $2.00
No. 147—Nickel-plated, matches ⅝ in. boards, cuts groove 5/16 in.; wt., 2½ lbs., ... Each, 2.00
No. 148—Nickel-plated, matches ⅞ in. boards, cuts groove ⅜ in.; wt., 2½ lbs., ... Each, 2.00

As shown in cut, this tool is provided with both tongue and groove irons. With one side a tongue can be cut, and by reversing ends the plane will cut a groove to fit. The tonguing tools are made wider on one side for use on thicker stuff than the plane will tongue and groove in the center.

Core-Box Planes.

No. 57—10½ in., nickel-plated, with 1 pair additional sections, for semi-circles up to 5 in. diameter; wt., 5½ lbs., ... Each, $4.00
Additional Sections, 2½ ins. wide, for working large diameters, ... Per Pair, 1.00

A tool much needed by pattern-makers, wheelwrights, and others for planing out semi-circles. This plane is constructed so that the sides can be extended by additional sections 2½ inches wide until a diameter of 10 inches can be worked, if desired.

Circular.

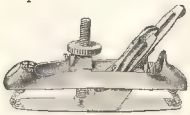
No. 113—10 in., 1⅜ in. cutter; wt., 3½ lbs., ... Each, $2.75

This plane has a flexible steel face which can be readily shaped to any required arc, either concave or convex, by turning the knob on the front of the plane.

No. 13—10 in., 1⅜ in. cutter; wt., 3½ lbs., ... Each, $2.75

This plane has a flexible steel face and, by means of the thumb-screws at each end of the stock, can be easily adapted to plane circular work, either concave or convex.
One in a box.

Improved Victor Circular.



No. 20—10 in., nickel-plated, 1⅜ in. cutter; wt., 4 lbs., Each, $3.75

The flexible steel face of this plane can be made concave or convex by turning the screw which is attached to its center
One in a box.

Adjustable Chamfer.

No. 72—9 in. iron stock, 1⅜ in. cutter; wt., 3 lbs., Each, $2 00
No. 72½—With beading attachment; wt., 4 lbs., . . " 3 00

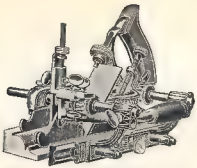
For beading, reeding or moulding a chamfer, an additional attachment is furnished with six cutters, sharpened at both ends, including a large variety of ornamental forms.

Stanley's Hand Beaders.

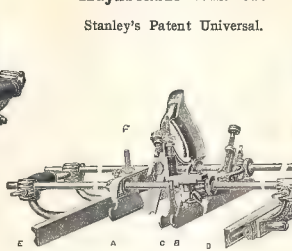
No. 66—Nickel-plated stock, 7 steel cutters and 1 blank, with 2 gauges for straight or curved work; weight, 1½ lbs., ... Each, $1.00
Extra Cutters or Blanks, ... " .05
One in a box.

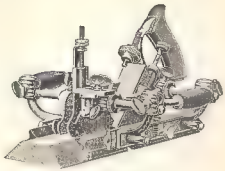
Adjustable Planes.

Stanley's Patent Universal.



As a Moulding Plane.





As a Chamfer.

No. 55 -STANLEY'S UNIVERSAL, nickel plated, 52 tools, bits, etc ; the 52 cutters are arranged in four separate cases, and the entire outfit is packed in a neat wooden box,. . . . . Each, $16.00

Cutters for Stanley's Patent Universal Plane No. 55.

Cuts one-quarter size

	Each.
No. 1—1½ in. sash tool,	$0.50
No. 2—1¼ in sash tool,	.50
No. 5 - ½ in. match tool,	.50
No. 6—$\frac{5}{16}$ in. match tool,	.50
No. 8— ⅛ in. sliting tool,	.30
No. 9 -1½ in. fillester,	.25
No 10 - ⅛ in. plow and dado tool,	.15
No. 11—$\frac{3}{16}$ in. plow and dado tool,	.15
No. 12 - ¼ in. plow and dado tool,	.15
No. 13 $\frac{5}{16}$ in. plow and dado tool,	.15
No. 14— ⅜ in. plow and dado tool,	.20
No. 15 $\frac{7}{16}$ in. plow and dado tool,	.20
No. 16 - ½ in. plow and dado tool,	.20
No. 17— ⅝ in. plow and dado tool,	.20
No. 18 ¾ in. plow and dado tool,	.20
No. 19— ⅞ in. plow and dado tool,	.25
No. 21 ⅛ in. bead tool,	.15
No. 22—$\frac{3}{16}$ in bead tool,	.15
No. 23— ¼ in. bead tool,	.15
No. 24—$\frac{5}{16}$ in. bead tool,	.20
No. 25 — ⅜ in. bead tool,	.20
No. 26—$\frac{7}{16}$ in. bead tool,	.25
No. 27 ½ in. bead tool,	.25
No. 28— ⅝ in. bead tool,	.30
No. 29 ¾ in. bead tool,	.30
No. 31 $\frac{3}{16}$ in fluting tool,	.30
No. 32 ¼ in. fluting tool,	.30
No. 33—$\frac{5}{16}$ in. fluting tool,	.30
No. 34— ⅜ in fluting tool,	.30
No. 35 $\frac{7}{16}$ in fluting tool	.30
No. 36 - ½ in. fluting tool,	.30

	Each.
No. 37 ⅝ in. fluting tool,	$0.30
No. 38— ¾ in. fluting tool,	.30
No. 42— ⅛ in hollow,	.20
No. 43 ¼ in. hollow,	.20
No. 44— ⅜ in. hollow,	.20
No. 45 - ½ in. hollow,	.20
No. 46— ¾ in hollow,	.20
No. 47—1 in. hollow,	.20
No. 52 - ⅛ in. round,	.20
No. 53 — ¼ in. round,	.20
No. 54— ⅜ in round,	.20
No. 55 ½ in. round,	.20
No. 56— ⅝ in. round,	.20
No. 57—1 in. round,	.20
No. 61 - ⅛ in. quarter hollow,	.45
No. 62— ¼ in. quarter hollow,	.45
No. 63 ⅜ in. quarter hollow,	.45
No. 64— ½ in. quarter hollow,	.50
No. 65— ¾ in. quarter hollow,	.50
No. 66 1 in. quarter hollow,	.50
No. 71— ⅛ in quarter round,	.45
No. 72— ¼ in quarter round,	.45
No. 73— ⅜ in. quarter round,	.45
No. 74— ½ in. quarter round,	.50
No. 75— ¾ in quarter round,	.50
No. 76 1 in quarter round,	.50
No. 81 ⅛ in reverse ogee,	.45
No. 82— ¼ in. reverse ogee,	.45
No. 83— ⅜ in. reverse ogee,	.45
No. 84— ½ in reverse ogee,	.50
No. 85 ¾ in. reverse ogee,	.50

	Each.
No. 86 1 in. reverse ogee,	$0 50
No. 91— ⅛ in Roman ogee	.45
No. 92 ¼ in Roman ogee	.45
No. 93 ⅜ in. Roman ogee,	.45
No. 94 - ½ in. Roman ogee,	.50
No. 95— ¾ in. Roman ogee,	.50
No. 96 1 in. Roman ogee,	.50
No. 101 - ⅛ in Grecian ogee,	.45
No. 102— ¼ in. Grecian ogee,	.45
No. 103— ⅜ in. Grecian ogee,	.45
No. 104— ½ in. Grecian ogee,	.50
No. 105— ¾ in. Grecian ogee,	.50
No. 106 1 in Grecian ogee,	.50
No. 111 - ⅛ in ¼ round with bead,	.45
No. 112 ¼ in. ¼ round with bead,	.45
No. 113 ⅜ in ¼ round with bead,	.45
No. 114— ½ in ¼ round with bead,	.50
No. 115— ¾ in. ¼ round with bead,	.50
No. 116 1 in. ¼ round with bead,	.50
No. 212 — ⅛ in. reed tool, 2 beads,	.20
No. 213— ⅜ in. reed tool, 3 beads,	.30
No. 214 ½ in. reed tool, 4 beads,	.40
No. 215— ¾ in. reed tool, 5 beads,	.50
No. 222— $\frac{3}{16}$ in. reed tool, 2 beads,	.20
No. 223 $\frac{3}{16}$ in. reed tool, 3 beads,	.30
No. 224— $\frac{3}{16}$ in. reed tool, 4 beads,	.40
No. 225— $\frac{3}{16}$ in. reed tool, 5 beads,	.50
No. 232— ¼ in. reed tool, 2 beads,	.20
No. 233— ¼ in. reed tool, 3 beads	.30
No. 234— ¼ in. reed tool, 4 beads,	.40
No. 235— ¼ in reed tool, 5 beads,	.50

All cutters are measured their full width except beading and match, which are measured by the work they will do.

Other tools of various kinds can be furnished to order.

Patent Adjustable Planes and Scrapers.

Combined Beading and Matching.

No. 50—7¾ in., nickel-plated iron stock and fence, with $\frac{1}{8}$, $\frac{3}{16}$, $\frac{1}{4}$, $\frac{5}{16}$, $\frac{3}{8}$, $\frac{7}{16}$ and $\frac{1}{2}$ in. beading tools and 1 pair ½ in. matching tools; wt., 9½ lbs., ... Each, $4.00

By the adjustment of the fence, center beading can be done up to five inches from the edge of the board. Except for working across the grain, the spurs need not be used.

One in a box.

Stanley's Floor Plane.

No. 74—10½ in., 2⅜ in. cutter, 45 in. handle; weight, 20 lbs., ... Each, $4.50

One in a wood box.

Wood Workers' Routers.

No. 71—Nickel-plated, width 8½ in., ¼ and ½ steel bits; wt., 2½ lbs., ... Each, $1.85

One in a box.

No. 71½—Nickel-plated, width 8½ in., ¼ and ½ in. steel bits, with throat attachment; wt., 2½ lbs., . . . Each, $1.50

One in a box.

Bailey's Adjustable Veneer Scraper.

No. 12—8 in., 3 in. cutter, rosewood handle; wt., 3½ lbs., ... Each, $2.25

Takes same cutter as No. 112 Scraper and is adapted to the same uses

One in a box.

Stanley's Adjustable Scraper Planes.

No. 112—9 in., 3 in. cutter, wt., 4 lbs., ... Each, $2.00
Cutters, for veneer scraping, ... " .20
Cutters, for toothing, Nos. 22, 28, 32 (22, 28 or 32 teeth per in.), ... Each, .30

This tool is used for scraping and finishing veneers or cabinet work. It can be used equally well as a tooth plane, and will do excellent work in scraping off old paint and glue.

One in a box.

Cabinetmakers' Scrapers.

No. 85—8 in., 2 in. cutter, adjustable cutter, tilting handle and knob; wt., 4 lbs., ... Each, $3.00

One in a box.

No. 87—8 in., 2 in. cutter, stationary rosewood handle and knob; weight, 4 lbs. . . . . Each, $2.00

One in a box.

Patent Block Planes.

Bailey's.

Low Angle.

No. 60½—6 in., low angle, 1½ in. cutter; wt., 1 lb., Each, $1 00
No. 65½—7 in., low angle, 1¾ in cutter; wt., 1 lb., " 1.10
No. 60 Nickel trimmings, otherwise as No. 60½, . " 1.15
No. 65 —Nickel trimmings, otherwise as No. 65½, . " 1.25

One in a box.

With Throat Opening and Lateral Adjustment.

No. 9½—6 in., 1¾ in. cutter, wt., 1½ lbs., ... Each, $1.00
No. 15 —7 in., 1¾ in. cutter; wt., 1½ lbs., ... " 1.10
No. 16 Nickel trimmings, otherwise as No. 9½, . " 1.15
No. 17 —Nickel trimmings, otherwise as No. 15, . " 1.25

One in a box.

With Throat Opening and Lateral Adjustment.

No. 9¾ 6 in., rosewood handle, 1¾ in. cutter; wt., 1½ lbs., ... Each, $1.20
No. 15½ 7 in., rosewood handle, 1¾ in. cutter; wt., 1¾ lbs., ... Each, 1.30

One in a box.

With Throat Opening and Lateral Adjustment.

No. 18—6 in., knuckle joint, nickel trimmings, 1¾ in. cutter; wt., 1½ lbs., ... Each, $1.20
No. 19 —7 in., knuckle joint, nickel trimmings, 1¾ in. cutter; wt., 1½ lbs., ... Each, 1.30

The knuckle joint in the cap makes it a lever, too, and placing the cap in position will also clamp the cutter securely in its seat

One in a box.

No. 131—8 in., double ender, adjustable, 1¾ in. cutter; wt., 1½ lbs., ... Each, $1.40

This plane has two slots and a movable cutter seat. When it is desired to use it as a bull nose plane the cap and cutter can be removed and the adjustable cutter seat reversed, as indicated in cut.

One in a box.

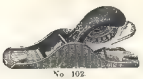
Stanley's.

No. 100.

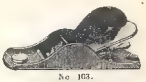
No. 101.

No. 100 3½ in., handled, 1 in. cutter; wt., 6 oz., . . Each, $0.20
No. 101 3½ in., 1 in. cutter; wt., 4½ oz., ... " .15

One in a box.



No. 102



No. 103.

No. 102—5½ in., 1¼ in cutter; wt., ¾ lbs., ... Each, $0.30
No. 103 5½ in., adjustable, 1¼ in. cutter; wt., ¾ lb., " .45

One in a box.

No. 110—7½ in., 1¾ in. cutter; wt., 1½ lbs., ... Each, $0.45

One in a box

No. 220 7½ in., adjustable, 1¾ in. cutter; wt., 1½ lbs., Each, $0.60

One in a box.

No. 130 8 in., double ender, 1¾ in. cutter; wt., 1½ lbs., ... Each, $0.60

This plane has two slots and two cutter seats. By reversing the position of the cutter and the clamping wedge, it can be used close up into corners or other difficult places

Stanley's Low Angle.

No. 62—14 in. low angle block, 2 in. cutter; wt., 4 lbs., Each, $2.60

This plane is especially adapted for use in cutting across the grain on heavy work, where more power is required than can be obtained by the use of the ordinary block plane. The plane is fitted with patent adjustable throat, which enables the user to work equally well on hard or soft wood.

One in a box.

Stanley's Patent Adjustable Planes.

Duplex Rabbet and Filletster.

No. 78—$8\frac{1}{2}$ in., iron stock and fence, $1\frac{1}{2}$ in. cutter; wt., 3 lbs., ... Each, $1.50

The arm to which the fence is secured can be screwed into either side of the stock, thus making a superior right or left hand filletster, with adjustable spur and depth gauge. By removing the arm to which the fence is secured for rabbet plane, with two seats for the cutter, the tool can be used as a bull nose rabbet.

One in a box.

Improved Rabbet.

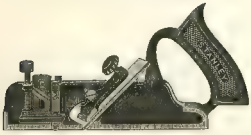
Iron Stock, Length 8 Inches, with Depth Gauge.

No. 180—$1\frac{1}{2}$ in. wide, without spur; wt., $2\frac{1}{2}$ lbs., . . Each, $1.00
No. 181 $1\frac{1}{2}$ in. wide, without spur; wt., $2\frac{1}{2}$ lbs., . . " 1.00
No. 182—1 in. wide, without spur; wt., 2 lbs., . . " 1.00
No. 190—$1\frac{1}{2}$ in. wide, with spur; wt., $2\frac{1}{2}$ lbs., . . . " 1.15
No. 191 $1\frac{1}{2}$ in. wide, with spur; wt., $2\frac{1}{2}$ lbs., ... " 1.15
No. 192—1 in. wide, with spur; wt., 2 lbs., . . . " 1.15

This plane will lie perfectly flat on either side, and can be used with the right or left hand equally well, while planing into corners or up against perpendicular surfaces. The planes of this design, which are fitted with spur, are adaptable for use for working across the grain. All of these planes are fitted with a depth gauge.

One in a box.

Improved Dado Planes.



Iron Stock, 8 Inches Long, with Adjustable Depth Gauge.

No. 39—In., ...	$\frac{5}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{7}{8}$
Weight, lbs., ...	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$
Each, ...	$1.50	1.50	1.50	1.50
Extra Cutters, ...				Each, 20

The cutter is set on a skew Plane is fitted with a depth gauge, adjustable by means of a thumb screw, also with two adjustable spurs, which can be adjusted to take up wear as well as for depth of cut.

One in a box.

Adjustable Tonguing and Grooving.

No. 48—$8\frac{3}{4}$ in., nickel-plated iron stock and fence, for $\frac{3}{8}$ to $1\frac{1}{2}$ in. boards, including tonguing and grooving tools; weight, 3 lbs., ... Each, $2.50
No. 49—8 in., nickel-plated iron stock and fence, for $\frac{3}{8}$ to $\frac{3}{4}$ in. boards, including tonguing and grooving tools; wt., $2\frac{1}{2}$ lbs., ... Each, 2.50

These planes have two separate cutters a suitable distance apart. When the guide, or fence, is set, as shown above, both cutters work and a tongue can be made. The fence is hung on a pivot and can be swung around, end for end. This movement covers one of the cutters and also furnishes a guide for grooving an exact match for the tongue.

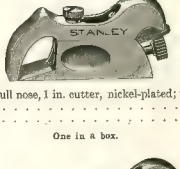
One in a box.

Bull-Nose Rabbet.

No. 75—4 in., iron stock, 1 in. cutter, wt., $\frac{1}{2}$ lb., . . Each, $0 35

One in a box.

Adjustable Bull-Nose Rabbet.



No. 90—4 in. bull nose, 1 in. cutter, nickel-plated; wt., $1\frac{1}{2}$ lb., ... Each, $2.00
Extra Cutters, ... " :30

One in a box.

No. 92—$5\frac{1}{2}$ in. rabbet, $\frac{3}{4}$ in. cutter, nickel-plated; wt., 2 lbs., ... Each, $2.00

This plane is designed for fine cabinet work, where extreme accuracy is desired. The sides and bottom being square with each other, the plane will lie perfectly flat on either side, and can be used right or left. Both the cutter and width of throat opening are adjustable.

One in a box.

Plane Irons.

Wood Bench.

Single Irons.

No. 1—Ins.,	2	2⅛	2¼	2⅜	2⅝
Per Dozen,	$2.50	2.63	2.88	3.13	3.63

Double Irons.

No. 2—Ins.,	2	2⅛	2¼	2⅜	2⅝
Per Dozen,	$4.13	4.25	4.50	4.75	5.50

Half dozen in a box.

Bailey's Patent Improved.

Bailey's Single Irons.

Ins.,	1¼	1⅝	1¾	2
Each,	$0.18	.21	.23	.25
Ins.,	2⅛	2¼	2⅜	2⅝
Each,	$0.27	.28	.29	.32

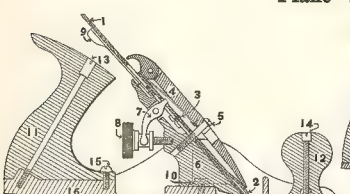
Bailey's Double Irons.

Ins.,	1¼	1⅝	1¾	2
Each,	$0.32	.35	.38	.42
Ins.,	2⅛	2¼	2⅜	2⅝
Each,	$0.45	.47	.48	.50

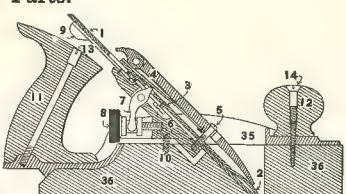
In ordering plane irons for Bailey's or Stanley's planes, state the number of plane for which they are wanted. Bailey's irons are for iron or wood planes.

Half dozen in a box.

Plane Parts.



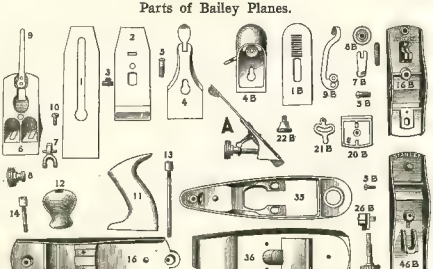
Sectional elevation of Bailey Iron Plane.



Sectional Elevation of Bailey Wood Plane.

Parts of Bailey Planes.

Nos.
1. Plane iron.
2. Plane iron cap.
3. Plane iron screw.
4. Cap.
5. Cap screw.
6. Frog.
7. "Y" adjustment.
8. Brass adjusting nut.
9. Lateral adjustment.
10. Frog screw.
11. Handle.
12. Knob.
13. Handle "bolt and nut."
14. Knob "bolt and nut."
15. Handle screw.
16. Bottom (iron plane).
35. Top casting (wood plane).
36. Bottom (wood plane).



Parts of block planes have B after the number.

1B. Plane iron.
4B. Cap.
5B. Cap screw.
7B. Adjusting lever.
8B. Adjusting nut.
9B. Lateral adjustment.
16B. Bottom (adjustable throat).
20B. Mouth piece.
21B. Eccentric plate.
22B. Knob.
26B. Adjustable frog.
28B. Adjusting screw.
46B. Bottom.

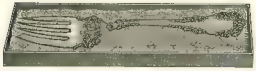
The above cut shows a collection of parts which, when assembled, form the Bailey Planes, both iron, wood and block.

Each part is identified by a number. These numbers refer to the lists giving the names of the various parts. In ordering parts for any plane, give the number and name as given in the list and also the number of the plane for which the parts are required.

The collection of parts marked A consists of the No. 6 frog, No. 7 "Y" adjustment, No. 8 brass adjusting nut and No. 9 lateral adjustment. These parts are termed "Frog Complete," and if a "Frog Complete" is ordered, the parts are always put together before shipment from the factory.

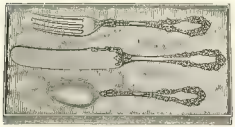
"1847 Rogers Bros." Silver-Plated Ware.

Cuts one-third size.



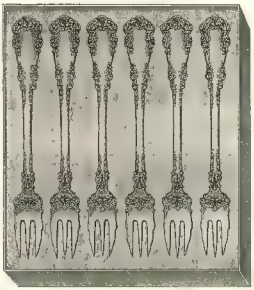
Cold Meat Forks, BERKSHIRE PATTERN, A1 or extra plate, ... Each, $1 25

One in a satin-lined box.



Child Sets, BERKSHIRE PATTERN, A1 or extra plate, ... Per Doz. Sets, $24.00

One set in a box.



Oyster Forks, BERKSHIRE PATTERN, A1 or extra plate, ... Per Dozen, $6.30

One-half dozen in satin-lined box.

Cut full size.

Sugar Tongs, BERKSHIRE PATTERN, A1 or extra plate, ... Per Dozen, $18.00

One-twelfth dozen in a satin-lined box.

Fruit Knives.

Cuts full size.

No. 26—WINDSOR PATTERN, triple plate, ... Per Dozen, $5.50

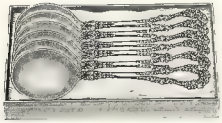
No. 41—SHELL PATTERN, triple plate. . . . . Per Dozen, $5 70

No. 42—VESTA PATTERN, triple plate . . . . . Per Dozen, $5.70

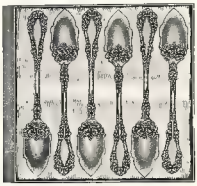
"1847 Rogers Bros." Silver-Plated Ware.

Berkshire Pattern, Bright Finish.

Cuts one-third size

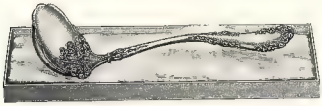


Soup Spoons, BERKSHIRE PATTERN, A1 or extra plate round bowl, ... Per Dozen $9 50
Extra for lined box, ... 1 00
Half-dozen in a satin-lined box.

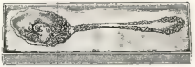


Orange Spoons, BERKSHIRE PATTERN, A1 or extra plate, plain bowl, ... Per Dozen, $6.00
Half-dozen in a satin-lined box.

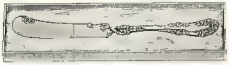
Berry Spoons, BERKSHIRE PATTERN, A1 or extra plate,
PLAIN BOWL, ... Each, $2 00
GILT BOWL, ... " 2 75
One in a satin-lined box.



Ladles, BERKSHIRE PATTERN, A1 or extra plate.
CREAM LADLES, 6½ inches, ... Each, $1 14
GRAVY LADLES, 7½ inches, " 1 50
SOUP LADLES, ... " 4 00
One in a satin-lined box.



No. 608B—Sugar Shell, BERKSHIRE PATTERN, A1 or extra plate, ... Per Dozen, $10.50
One-twelfth dozen in a satin-lined box.



No. 609B—BUTTER KNIVES, Berkshire pattern, A1 or extra plate, ... Per Dozen, $12 00
One-twelfth dozen in a satin-lined box.

No. 604B Butter Knife and Sugar Shell, BERKSHIRE PATTERN, A1 or extra plate, . . . Per Set, $1 83
One set in a satin-lined box.

Jelly Knives, BERKSHIRE PATTERN, A1 or extra plate, ... Each, $1 50
One in a satin-lined box.

Pickle Forks, BERKSHIRE PATTERN, A1 or extra plate, ... Each, $0.88
One in a satin-lined box.

Pie Knives, BERKSHIRE PATTERN, A1 or extra plate, ... Each, $2.50
One in a satin-lined box.

Reach Base Balls.

The entire line of Reach Base Ball Mitts and Gloves are guaranteed to give absolute satisfaction, which means that if they do not, the dealer or consumer, whoever he may be, can either get a new article or credit immediately upon receipt of the defective one by us or by the factory.

Reach Official American Association.

The Official Ball of the American League.

No. 0 This ball used exclusively by the American League and is official for all leagues, is of the highest quality, the best made, and absolutely guaranteed, retails for $1 25, . . Per Dozen, $21 60

No. 1—Made of superfine wool yarn, best para rubber center, under a patent process, without which no ball can be made to retain its shape and firmness; best horsehide cover; guaranteed to last a full game of nine innings, the official ball of the American Association. Retails for $1 25, ... Per Dozen, 21.60

Each ball wrapped in tin foil, put up in a separate box, and sealed according to the regulations of the American Association, American and National Leagues.

Reach League.

No. 3C—Made of all wool yarn, rubber center, horsehide cover, and warranted to last a full game of nine innings. Retails for $1 00, ... Per Dozen, $16 00

Wrapped in tin foil, put up in a separate box, and sealed.

Reach Professional.

No. 4A Made regulation size and weight, of good material, good quality horsehide cover; a first-class ball for amateurs. Retails for 75c, . . Per Dozen, $12 00

Each ball put up in a separate box and sealed.

Reach Bounding Rock.

No. 7 Regulation size and weight, horsehide cover; best ball at the price on the market Retails for 50c, ... Per Dozen, $8 00

Each ball put up in a separate box and sealed

Reach Cock of the Walk.

No. 8 Covered with horsehide and made regulation size and weight; a good practice ball. Retails for 25c, ... Per Dozen, $4.00

The Reach Junior League Ball.

No. 9 Junior size and weight, horse hide cover, made of good, lively material. A perfect boys' ball, retails for 25c. . . . . Per Dozen, $4 00

Each ball put up in a separate box and sealed.

Reach Champion.

No. 11—Slightly below regulation size; the best 10c ball on the market; sheepskin cover. Retails for 10c, ... Per Dozen, $1.00

Reach Bounder.

No. 12—A good, lively ball; the best 5c ball on the market; size 8 inches, weight 4 ounces. Retails for 5c, ... Per Dozen, $0 90

Reach Dandy.

No. 12A A good 5 cent ball slightly smaller than the No 12, retails for 5 cents, ... Per Dozen, $0 84

One dozen in a box.

An Extract from the Rules Governing the American and National Leagues and All Clubs Under the National Agreement:

RULE 14. THE BALL.

No 0 American League and No. 1 American Association and No. 3C League Ball are guaranteed to last a full game of nine innings. and we will replace all which show defects in material or workmanship Balls that are allowed to become wet will not be made good.

All defective balls must be sent to factory for inspection.

Reach Basemen's and Fielders' Gloves.

The Reach Catchers' Mitts, First Basemen's and Fielders' Mitts and Gloves are made on the latest practical ideas and suggestions of the leading professional and amateur players.

League Basemen's Glove.

No. 0B—LEAGUE BASEMEN'S, drab buckskin; has no hump, but is extra heavy padded in the heel and little finger, forming a deep pocket; recommended for pitchers and basemen. Retails for $3 00, ... Each, $4.00

No. 01—Same as 0B, but made of black calfskin, ... Each, 4.00

Leather Lined.

No. 0BL—Same as No. 0B, but leather lined, . . Each, 4 00

No. 01L—Same as No. 01, but leather lined, . . " 4.00

One in a box.

League Fielders' Glove.

Nos. 00W and 03.

No. SW.

No. 00W—The leather used is a choice selection of strong, light weight, waterproof drab buckskin, padded with best asbestos felt, and is made in the most thorough and practical manner. It has the web thumb. No expense spared to make it the best. A feature is the patent deep pocket. Retails for $2.50, ... Each, $3.50

No. 03—Same as 00W, but made of black calfskin, ... Each, 3.50

No. SW—MEN'S FIELDERS' GLOVE is made of fine pearl colored calfskin, padded with best asbestos felt, web thumb, patent inside hump and patent deep pocket, welted, made on the celebrated 0B pattern. Retails for $2.00, ... Each, 2.76

Leather Lined.

No. 03L—Same as No. 03, but leather lined, . . Each, $3.50

No. SWL—Same as SW, but leather lined, ... " 2.76

One in a box.

Fielders' Gloves.

No. 3G.

Nos. 2 and 2L.

No. 3G—MEN'S FIELDERS', excellent quality drab suede buck, welted, extra heavy padded with best felt, patent deep pocket, web thumb, made on the celebrated 0B pattern. Retails for $1.50, . . Each, $2.14

No. 2—MEN'S FIELDERS', excellent quality drab suede buck, welted, padded with best felt, patent hump and patent deep pocket, web thumb. Retail for $1.25, ... Each, 1 80

No. 2L—MEN'S FIELDERS', of excellent quality drab suede buck, welted, padded with best felt, leather lined, patent hump and patent deep pocket, web thumb. Retail for $1.50, ... Each, 2.10

One in a box.

No. 11.

No 17N.

Nos. 18N and 24.

No. 11—MEN'S FIELDERS', excellent drab suede buck, heavy padded with felt, patent hump, web thumb, patent deep pocket, retails for $1.00. . . . . Each, $1.34

No. 17N—MEN'S FIELDERS', fine black tan leather, well padded, web thumb, leather lined, patent inside hump and patent deep pocket. Retails for 75c, ... Each, 1.00

No. 18N—MEN'S FIELDERS', fine black tan leather, patent hump leather lined, well padded and patent deep pocket, web thumb. Retails for 50c,. . Each, .75

No. 24—BOYS' FIELDERS', fine pearl tan leather, felt padded, patent hump, web thumb and patent deep pocket. Retails for 25c, ... Each, .36

Nos. 11 and 17N, one; No. 18N, three; No. 24, six in a box.

All Mitts and Gloves are made in Rights and Lefts. Explanation—Lefts are regular and are used on the left hand by players who throw with the right hand. Rights are called full-right and are used on the right hand by players who throw with the left hand.

Lefts will be sent in all cases except when specified on order that rights are desired.

Folding Wringer Benches.

Mohawk, folding, reversible water board, any pattern of wringer can be placed on the cross bar; weight, each, 20 pounds, ... Per Dozen, $25 50

Wringer Stands.

No. 6 Wringer rods, dark Mission finish, holds 6 wringers; weight, crated, 45 pounds, ... Each, $3.00

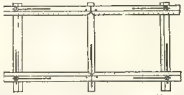
Mangles.

Invincible, rolls 24x4½ inches, and are made of hardwood, thoroughly seasoned; parts under strain are made of malleable iron; easy turning purchase gear; weight, 60 pounds, ... Each, $32 00

No. 2—With ball bearings and table clamps, hardwood rolls, 24x3¾ inches; weight, 55 pounds, . . . Each, $9.40
No. 3—With metal bearings, otherwise same as No. 2, ... Each, 8.34

This mangle is especially adapted for family use and places where the laundry work is not very large. For table cloths, napkins, towels, handkerchiefs, sheets, pillow slips, and clothes that are not starched and do not have buttons on.

Curtain Stretchers.



No. 8—Basswood, 6x12 feet, 1⅜ in. stock, adjustable folding, with center brace, stationary nickel plated brass pins 2 in. apart; wt., per doz., 120 lbs., Per Dozen, $15 00

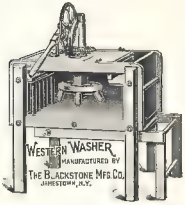
With Attached Easels.

No. 5—Basswood, 6x12 feet, 1⅜ in. stock, with attached easels, upper corners level pins adjust themselves to any size scallop; wt. per doz., 140 lbs., Per Dozen, $28.00

Washing Machines.

Blackstone Square.

(Vandergrift.)



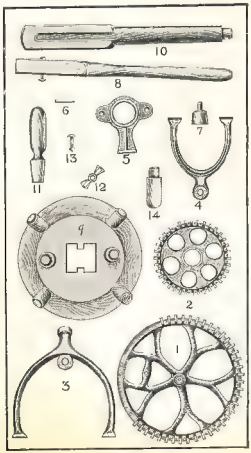
Best square washer made

Made from southern poplar, which makes danger of warping less than any other lumber. Finely finished, with aluminum bronzed gearing and gold bronzed wheel

No. 2—BLACKSTONE WESTERN WASHER, square, family size; weight, 60 pounds, . . . Each, $6 30

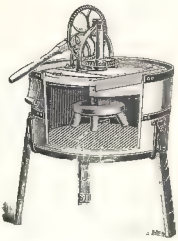
No. 3—BLACKSTONE WESTERN WASHER, square, large size; weight, 68 pounds, ... Each, 6 80

No. 2—DIAMOND WESTERN WASHER, square, family size; weight, 60 pounds . . . . . Each, 5 20



Illustrations of Extra Parts.

Climax.



Climax, tapering bottom, full corrugated sides and bottom inside, 3 heavy iron hoops, 3 strong well fastened legs; weight 50 pounds, ... Each, $5 2

Improved Pan-American Washer.

Improved Pan-American, flaring bottom, tub made from choice selected stock only, 3 heavy iron hoops, corrugated sides and bottom inside, 3 heavy legs, handsomely finished, aluminum bronzed gearing, gold bronzed wheel; weight, 50 pounds, ... Each, $6.00

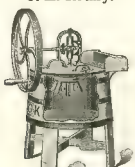
Extras for Western, Pan-American and Climax Washers.

No.		Price
1	Large gear wheel	$0 1.
2	Small gear wheel,	10
3	Large stand,	10
4	Small stand,	10
5	Collar and guide. . . .	10
6	Post pin for holding small cog on post,	05
7	Ferrule for end of post,	10
8	Top or lever handle for large gear wheel	20
9	Inside wooden wheel or dasher,	50
10	Post or standard for holding inside dasher,	10
11	Plug or stopper for holding water in machine,	10
12	Button for holding lid of machine down,	05
13	Bolts for holding castings to lid, ...	02
14	Pins or pegs for inside wheel or dasher,	10

NOTICE.—The above parts, numbered from 1 to 14, will fit either size of our Western Washers and also Pan-American and Climax Washer.

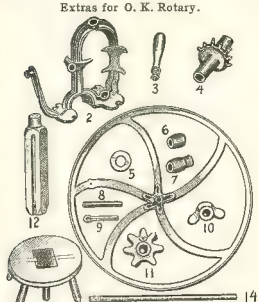
Washing Machines.

O. K. Rotary.



O. K. Washer, rotary, revolving steel ball gearings, tub made of Louisiana red cypress, solid legs; weight, 85 pounds, ... Each, $9.50

Extras for O. K. Rotary.



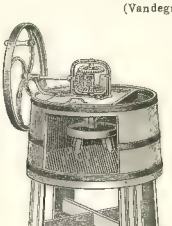
Smaller parts, such as Nos. 5 to 11 inclusive, 20 to 28 inclusive, can be sent by mail. Postage extra, 5 cents each.

Nos.	Name	Each.	Nos.	Name	Each.
1	Fly wheel	$1.20	13	Dasher with pins	$ .64
	Frame (see below)	.54	14	Steel shaft, 1x12 ins.	.26
3	Wheel handle	.15	15	Iron plunger (see below)	.54
	Head with roller (see below)	.60	20	Water plug	.08
5	Iron washer	.04	21	Wringer box bracket	.08
6	Small roller ball	.08	22	Japanned lifting handle	.08
7	Long roller ball	.08	23	Handle plate	.08
8	Steel pin	.08	24	Iron handle	.08
9	Spring cutter	.08	25	Spout	.08
10	Thumb nut	.08	26	Lower part of clamp	.08
11	Pinion	.15	27	Upper part or plate	.08
12	Wooden post	.34	28	Clamp (fastener)	.08

During the past year several changes, to which we wish to call your attention have been made on the O. K. Gear.

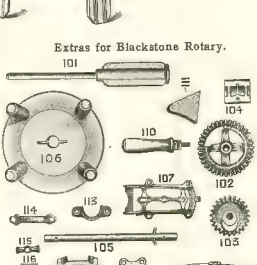
No 2 Frame is 9½ in high and has a 1 in hole in bottom
No. 102—Frame is 7½ in. high and has a 1 in. hole in bottom
No 202—Frame is 7½ in high, and has a ⅞ in. hole in bottom.
No. 4 Head is 5½ in high and has a 1 in. hole in center.
No. 104—Head is 3¼ in. high and has a 1 in hole in center.
No. 204—Head is 3¼ in high and has a ⅞ in. hole in center.
No. 15 Plunger is 12 in. long and 1 in. in diameter
No. 115—Plunger is 10 in. long and 1 in. in diameter.
No. 215—Plunger, is 15½ in. long and ⅞ in. in diameter and is galvanized
No. 13—Dasher has square hole in center.
No. 213—Dasher has round hole in center and is for galvanized plunger.

Blackstone Rotary.
(Vandegrift.)



Blackstone Rotary, flaring bottom, 3 heavy iron hoops, corrugated bottom and side staves, fly wheel gold bronzed and outside gearings aluminum bronzed, stave legs; weight, 70 pounds . Each, $9 00

Extras for Blackstone Rotary.



Nos.		Each.	Postage additional
100	Main casting or frame	$0 75	not mailable
101	Post or shaft for holding dasher	.35	$0.42
102	Upper and lower gear wheel	.35	.23
103	Small pinion or gear wheel	.35	.23
104	Clutch for holding latch	.30	.16
105	Shaft or rod for fly wheel	.20	.08
106	Inside wheel or dasher	.46	not mailable
107	Leg bracket	.20	.10
108	Latch	.15	.07
109	Balance or fly wheel	1.34	not mailable
110	Handle, with bolt for fly wheel	.15	.07
111	Block or lid rest	.08	.03
112	Handle plate	.08	.04
113	Spout	.08	.03
114	Lifting handle	.08	.03
115	Button for lid	.08	.02
116	Spring for latch	.08	.01
117	Pin for fly wheel	.02	.01
118	1x1½-inch stove bolt	.03	.01
119	Spring cotter for fly wheel	.02	.01
120	Handle for side of tub	.08	.05

Above parts marked "not mailable" will be sent by express, charges collect.

Razors.

Boker's Tree Brand Razor Assortments.

No. 1081G—Assortment, six ⅞ inch Boker's Tree Brand razors, fancy handles, best possible selection of blades, front sides of all blades are crocus polished, display cases are handsomely made in imitation alligator with hinged glass top, two display cases furnished with each dozen razors, ... Per Dozen, $30 00

One assortment in a box.

No. 1081G.

No. 1081

No. 1081—Assortment, six ⅞ inch Boker's Tree Brand razors, fancy handles, best possible selection of blades, front side of all blades crocus polished, display cases are handsomely made in imitation seal and alligator, two display cases are furnished with each dozen razors, Per Dozen, $30.00

One assortment in a box.

Bicycle Sundries.

Neverleak Tire Fluid.

Makes Tires Leak Proof.

Neverleak, 4 oz. collapsible tubes, the thread end of which screws into the valve stem, in order to inject the fluid, ... Per Dozen, $3.50

When injected into a tire will never evaporate, but is always in liquid form, guaranteed not to injure the tire. Full instructions with each can and tube

Any pneumatic tire can be made absolutely leak and puncture proof by simply injecting into it four ounces of Neverleak Tire Fluid It is injected through the valve stem and flows around the inside of the tire. thoroughly coating the surface, and remaining in liquid form ready to plug any vent or puncture the instant made.

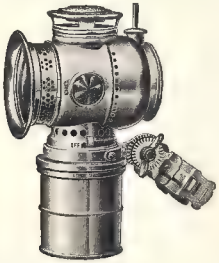
One dozen tubes in a box.

Calcium Carbide.

For acetylene gas lamps, ½ inch size, adapted for use in bicycle lamps and small automobile lamps.

2 Pound Cans, ... Each, $0.36
2 Pound Cans, in case lots of 24 cans, ... Per Case, 7.50

Breckenridge Acetylene Gas Lamps.



Breckenridge, heavy brass, nickel plated; weight when filled, 32 ounces, ... Each, $4.00

Excellence of the highest character in every feature. Simplicity of construction one of its chief recommendations. Each lamp is thoroughly tested before it leaves the factory Will burn about six hours.

Light Weight Oil Lanterns.

The standard oil lamp of the world; positively will not jar out.

Light Weight, brass and steel, nickel plated; height, 6 inches; weight, 14 ounces; burning capacity, 10 hours, ... Each, $1.60

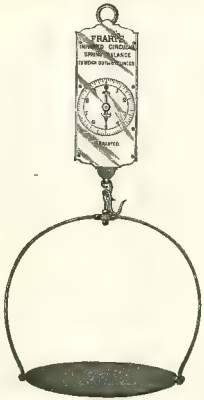
Head Lamp Brackets.

No. 67—Standard, felt lined, nickel plated, . Per Dozen, $1.80

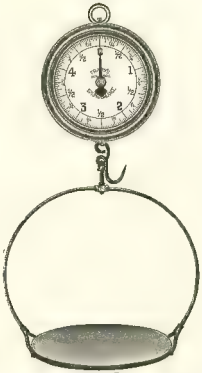
BE SURE To mention page 1577 In Your Catalogue, When Ordering Any Item Shown Thereon. April 17, 1908

Spring Balances.

Nos. 126 and 127.



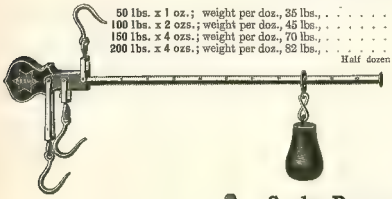
No. 150



No. 0015ED

No. 126—30 lbs.x1 oz., brass front, 5 inch dial, square tin dish; weight per doz., 60 lbs., ... Each, $6.25
No. 127 —60 lbs.x2 ozs., brass front, 5 inch dial, square tin dish; weight per doz., 72 lbs . . . . . " 7.50
No. 150 —30 lbs.x1 oz., brass front, 5 inch dial, 13 inch tin dish, tinned iron bows and swivels; weight per doz., 65 lbs., . . " 7.25
No. 0015ED—15 lbs.x½ oz., 8 inch double dials, 10 inch glass sash, porcelain enameled pan with nickel silver strengthened edges and nickel-plated bows, 13 inch pan dials marked in large plain figures, including ¼, ½ and ¾ lbs., wt., 20 lbs., " 15 00
One in a box.

Steel Yards.



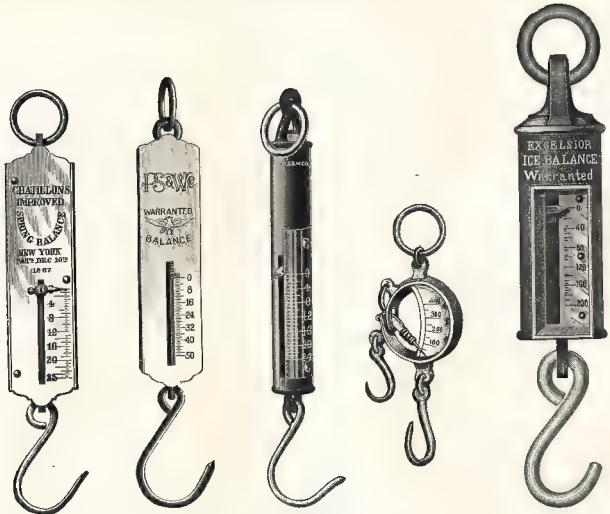
50 lbs. x 1 oz.; weight per doz., 35 lbs., ... Per Dozen, $ 6.00
100 lbs. x 2 ozs.; weight per doz., 45 lbs., ... " 7.00
150 lbs. x 4 ozs.; weight per doz., 70 lbs., ... " 9.00
200 lbs. x 4 ozs.; weight per doz., 82 lbs., ... " 10.00
Half dozen in a case.

Scale Beams.

Japanned, with White Figures and Gold Stripes.

Capacity, lbs., ...	150	200	250	300	400	500	600	800
Weight, lbs., ...	8	10	14	16	22	28	32	45
Each, ...	$1.50	1.60	1.90	2.10	2.90	3.50	4.00	5.30

Spring Balances.



Nos. 40C and 60C. Nos. 10, 30 and 40. Nos. 00 and 273. No. 500. Nos. 302 and 303.

Chatillons' Improved, Brass Front, with Hook and Ring.

No. 40C—25 lbs.x¼ lb.; weight per doz., 8 lbs., ... Per Dozen, $ 4.00
No. 60C—40 lbs.x½ lb.; weight per doz., 9 lbs., ... " 12.50

No. 40, half dozen; No. 60, quarter dozen, in a box.

P. S. & W. Co.'s, Brass Front, with Hook and Ring.

No. 10— 25 lbs.x¼ lb., light; weight per doz., 4 lbs., ... Per Dozen, $ 1.50
No. 30— 50 lbs.x1 lb., heavy; weight per doz., 8 lbs., ... " 2.70
No. 40— 25 lbs.x½ lb., extra heavy; weight per doz., 5 lbs., ... " 2.20
No. 87—100 lbs.x1 lb., heavy; weight per doz., 9 lbs., ... " 48.00

No. 10, one dozen; balance, half dozen, in a box.

Round Body, Japanned, Brass Front, with Hook and Ring.

No. 00—25 lbs.x¼ lb., barrel 5 inch long; weight per doz., 3½ lbs., ... Per Dozen, $3.60
No. 273—50 lbs.x½ lb., barrel 8½ inch long; weight per doz., 7½ lbs., ... " 8.50

No. 70, one dozen; No. 273, half dozen, in a box.

Ice Balances.

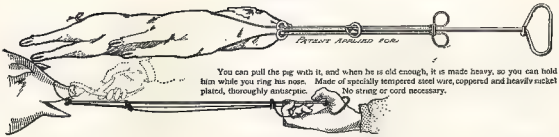
No. 302—EXCELSIOR, 200 lbs.x5 lbs, heavy, japanned body, brass front; weight per doz., 48 lbs., ... Per Dozen, $54.00
No. 303—EXCELSIOR, 300 lbs.x5 lbs., heavy, japanned body, brass front; weight per doz., 55 lbs., ... " 66.00
No. 500—GERMAN, double hook, polished steel spring, brass dial, capacity 300, 350 and 400 lbs.; weight per dozen, 10 lbs., ... Per Dozen, $10.00

Nos. 302 and 303, one; No. 500, half dozen in a box.

BE SURE To Remove and Destroy PAGE 264A In Your Catalogue, Which This Sheet Will Replace. Aug. 20, 1908

Pig Forceps.

Colson's.



Colson's, made of specially tempered spring coppered wire, heavily nickel-plated, cannot corrode or rust, thoroughly antiseptic, no string or cord necessary, ... Per Dozen, $15 00

One in a box.

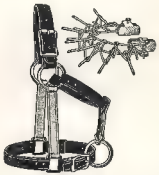
Combination Pig Holder and Forceps.

Short's, malleable iron, japanned, length 16 inches; weight per dozen, 16 lbs, ... Per Dozen, $13.00

Colt Halters and Weaners.

Hockaday's Detachable Combination.

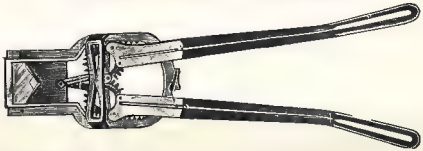
Attached.



Detached.

No. 400—⅞ inch full leather stock, two rivets to the lap, adjustable, ... Per Dozen, $18.00

Pratt's Perfect Dehorners.



Perfect—Main part of instrument is made from malleable iron, the blades of tool steel, and is practically unbreakable; blades are readily sharpened or replaced, ... Each, $9.00

Stevens' Single Shot Target Pistols.

"Tip-Up."

"Diamond."

Cut showing pistol with globe and peep sights.

No. 122—"TIP-UP" 22 caliber, rim-fire, 3½-inch nickel-plated barrel, walnut stock, ... Each, $ 4.50
No. 226 "DIAMOND," 22 caliber, 6-inch blued barrel, long plain walnut stock, open sights; weight, 10 oz., ... " 6.80
No. 236—"DIAMOND," 22 caliber, 6-inch blued barrel, long plain walnut stock, with globe and peep-sights; weight, 10 ounces, ... Each, 6 80
No. 220—"DIAMOND," 22 caliber, 10-inch blued barrel, long plain walnut stock, open sights; weight, 12 ounces, ... " 10.20
No. 230—"DIAMOND," 22 caliber, 10-inch blued barrel, long plain walnut stock, with globe and peep-sights, weight 12 ounces, ... Each, 10.20

One in a box.

"Off-Hand."

Stevens' Latest Model.

No. 356—"OFF-HAND" 22 caliber, 6-inch blued barrel, walnut stock, heavy butt; weight, 1 pound 6 ounces, ... Each, $10 20
No. 358—"OFF-HAND" 22 caliber, 8-inch blued barrel, walnut stock, heavy butt; weight, 1 pound 10 ounces, ... " 11.50

Pearl Stocks for Revolvers.

Cut showing carved pearl stock for Colt's Revolver.

Plain Pearl Stocks for all Revolvers on Pages 1446 to 1447
Per Pair $2.00.

Plain Pearl Stocks for Revolvers on Page 1450.

Colt's Pocket Positive, ... Per Pair, $2 50
Colt's Police Positive, ... " 5 50
Colt's Double Action, ... " 6 00
Colt's New Army, ... " 8 00

Pearl Stocks for Revolvers on Page 1451.

Plain Pearl Handles for Colt's Single Action, . Per Pair, $11 00
Carved Pearl Handles for Colt's Single Action, carved with head of American eagle or ox head, . . Per Pair, 20.00
Plain Pearl Handles for Bisley Model Single Action, " 14.00
Carved Pearl Handles for Bisley Model, carved with head of American eagle or ox head, ... Per Pair, 20.00

Pear. handles fitted to H. & R. and Iver Johnson Revolvers, extra per pair, $0.50.

Gun Show Cases.

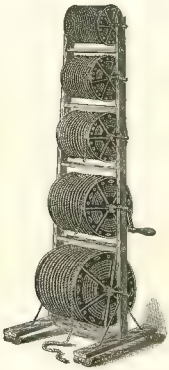
Challenge floor case.

Hexagon counter case.

Challenge, height 77 inch, width 26 inch, depth 20½ inch, oak frame, fitted with casters, doors fitted with lock and key, glass on all sides; the bottom inside is felt covered; lower part is provided with a drawer, ... Each, $30.00

Hexagon, height 55 inch, diameter 33 inch, with revolving center, oak frame, door fitted with lock and key, glass on all sides; the revolving center has 2 platforms, each capable of holding 12 guns or rifles, ... Each, 46.00

Rope Reels.



Crown, 5 japanned iron spools, hardwood frame, oiled and bolted, with casters, height 8 feet; wt., 195 lbs., ... Each, $30.00

Money Drawers.

No. 1—TUCKER'S ALARM, oak front, varnished and polished; outside dimensions, 4¾x16½x19 inch; wt., 12 lbs., ... Each, $3.70

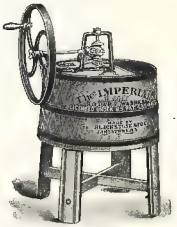
Half dozen in a crate.

No. 3—TUCKER'S ALARM, oak front, coin tray and woodwork plain; outside dimensions, 4¾x16½x19 inch; wt., 10 lbs., ... Each, $2.70

Half dozen in a crate.

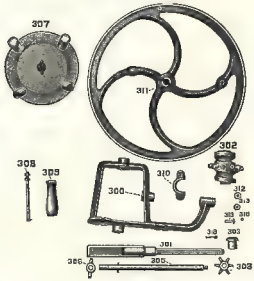
Washing Machines.

Imperial Rotary.



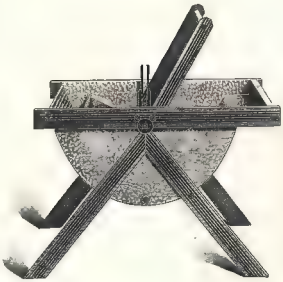
Imperial Rotary, gearing has roller bearings, sliding cylinder on square post, noiseless, stave legs; weight, 90 pounds, ... Each, $9.00

Extras for Imperial.

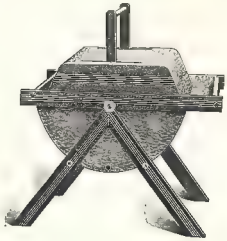


Nos.		Each.	Postage.
300	Stand,	$0 07	Not Mailable
301	Post, .	.33	$0 43
302	Cylinder,	.75	.50
303	Sprocket wheel, . .	.33	.07
304	Ferrule for top of stand,	08	04
305	Shaft or rod for fly wheel,	20	.18
306	Thumb screw to hold fly wheel on shaft,	08	03
307	Inside wooden wheel,	47	Not Mailable
308	Bolt for handle for fly wheel, ...	.08	.03
309	Wooden handle for fly wheel, . . .	.08	.02
310	Spout, ...	.08	.03
311	Fly wheel, ...	1.33	Not Mailable
312	Oval roller for pins on cylinder, . . .	.08	.01
313	Straight roller for end of shaft, ...	.08	.01
314	Rivet for fastening sprocket wheel on shaft, ...	.03	.01
315	Washer for oval rollers, ...	.02	.01
316	Spring cotter for top of post, ...	.03	.01

K. C.



No. 1 Corrugated bottom and sides of heavy galvanized iron, without top, finished in red paint, on woodwork; weight, 50 lbs, ... Each, $4.50



No. 2—Corrugated bottom and sides of heavy galvanized iron, with closed top, finished with red paint on woodwork; weight, 70 lbs., ... Each, $6.50

These machines have a nine-inch compressed coil spring incased in retinned spring carriers on each side of the machine.
There is no wood in the bottom or sides.

BE SURE To Remove and Destroy PAGE 947 In Your Catalogue, Which This Sheet Will Replace. Oct. 8, 1907

Gas Lights.

Select.

No. 5L.

No. C.

No. 5N.

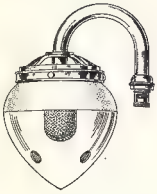
With Adjustable Gas Regulator.

Select, adjustable burner of heavy gauge, polished brass finish, good grade cap mantle, "Q" opal globe, ... Each, $0 55
No. 5L—Plain burner head, taper tube Bunsen, adjustable gas regulator, polished brass finish, highest grade single stitch, center rod cap mantle, mounted on extra heavy corrugated cap with collar, "Q" opal globe, ... Each, 1.10
No. C—With 10 inch opal shade and tripod, otherwise same as No. 5L burner described above, ... " 1.50
No. 5N—Plain burner head, adjustable regulator, polished brass finish, double wire cap mantle, with plain gauge 6 inch opal globe, 3 inch ring, ... Each, 1.10

One complete in a box.

Lindsay Inverted Lights.

Inverted No. 30.


No. 40.

Brighton Inverted.

Adjustable Inverted Burner, Inverted Mantle and Inverted Globe.

No. 30 —Complete with double etched globe, wreath design as illustrated, ... Each, $1.75
No. 30C—Old copper finish, otherwise same as No. 30, ... " 1.85
No. 35 —Complete with frosted globe, otherwise same as No. 30, ... " 1.60
No. 35C—Old copper finish, otherwise same as No. 35, ... " 1.70
No. 40 —Complete with half frosted globe, ... " 1 60
No. 40C—Old copper finish, otherwise same as No. 40, ... " 1.70

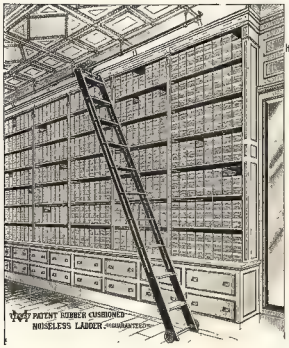
Brighton Inverted Lights.

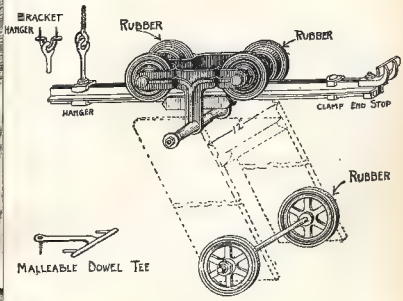
No. 2HF—Inverted burner with air shutter and adjustable gas regulator, German silver gas outlet, triple stitch inverted mantle, open bottom, half frosted globe, ... Each, $1 20
No. 2F—With frosted globe, otherwise same as No. 2HF, ... " 1.20

One complete in a carton, 100 in a case.

Myer's Cushion Tire Store Ladders.

For Factory Shipment Only.





Description.

The Track is the well-known double angle steel rail, which is very neat and strong, and is suspended from ceiling by means of lag screws, either jointed or rigid, or by flanged plates and wood screws. By this means the track is placed close to the ceiling and can be leveled on an uneven ceiling without the least trouble and without any blocking or bridging, as is the case in many other tracks.

The Ladder is constructed of the best clear Georgia pine, nicely finished, filled and varnished; has open panel sides, 5 inches wide, with 5 inch steps. Each step is supported at each end with a special malleable dowel tee, which makes the strongest construction possible. The width of the ladder is 12 inches.

The Trolley is self-adjusting and made of malleable iron fitted with turned steel bearings and 3 inch anti-rattler wheels, turned and bored on lathe, and fitted with special rubber tires.

The Floor Travelers are 5 inches in diameter, composed of metal sides with rubber cushion tires clamped in such a position as to be impossible to get off or come loose. The wheels are placed on a steel axle, which revolves with one of the wheels, the other running loose. In this manner the ladder will adjust itself to the floor. With this style trolley, which is noiseless, we overcome a great objection in other ladders.

Ladder and Trolley Complete, as shown above; weight, 62½ lbs., ... Each, $16.00
Track Complete with Hangers, weight per foot, 3 lbs., ... Per Foot, .30

Directions for Fitting Store Ladder.

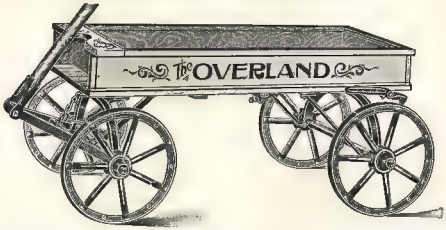
To find the required length of store ladder for any room, subtract from the height of the room 11 inches (this being the amount of space required by hangers, track and trolley); multiply the remainder by 1 1-10; the result will be the length of the ladder from hole at top to bottom of ladder.

When the ladder is not the proper length for ceiling, cut off at the bottom and replace the lower traveler shaft by boring new holes at the proper point, so as to have the steps of the ladder level.

Overland Coaster Wagons.

No. 0A—11x30 inch, 6 inch solid hardwood wheels, with extension hubs and ¾ inch strap tire, 1¼x2 inch rock maple axles, steel hounds, reliable steering mechanism, equipped with hand brake, white ash buckboard bottom and skeleton type removable express box, hard maple pole, attractively finished; weight, 10 lbs., ... Per Dozen, $30.00

Two in a crate.

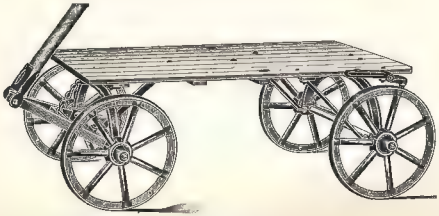


Perfect Steering Mechanism, which Operates Equally Well with Express Box On or Off; Steel Gear, Channel Steel Arch Construction, Front and Rear Axles Strongly Braced, Axles ½ Inch Round Steel, Large and Strong Malleable Fifth Wheel, Extra Heavy 11 Inch Wheels with Heavy Iron Hubs, Steel Felloes and Tires, Wood Spokes, White Ash Bottom with Removable Skeleton Type Express Box, Hard Maple Pole, Equipped with Hand Brake, Attractively Finished, Hard Steel Roller Bearings.

Nos.,	1A	2A	2½A	3A	5A
Size of bottoms, ins.,	14½ x 36	14½ x 36	14½ x 36	16½ x 40	18½ x 44
Weight, each, lbs.,	28	34	37	39	41
Per Dozen,	$60.00	72.00	76.00	80.00	86.00

NOTE—No. 1A has 8 inch wheels.

Packed, knocked down, two in a crate.



The express box on all OVERLAND COASTER WAGONS can be removed or replaced instantly changing the wagon from the express to coaster in a minute. A similar connection is arranged which can be easily operated and which securely locks the box to the bed, at the same time allowing the box to be instantly removed. When the box is removed it leaves a nice smooth bottom suitable for coasting purposes.

BE SURE To Remove and Destroy PAGE 617 In Your Catalogue, Which This Sheet Will Replace. March 4, 1908

Steel Express Wagons.

The body is painted a bright vermilion color, neatly striped and varnished; with the exception of the bottom board, it is made of the best quality of sheet steel with rounded corners, and the top is bent over a wrought-iron rod, which makes it very firm. Both front and back axles are thoroughly braced; front wheels cut under; japanned gear and tinned wheels.

Nos.,	00	0	1	2	3	4
Size of body, inches,	11x22x4	12x24x4½	13x26x5	14x28x5½	15x30x6	16x32x6
Size of wheels, inches,	7 and 10	9 and 12	10 and 14	12 and 16	14 and 18	14 and 18
Weight per dozen, pounds,	150	189	213	240	300	375
Per Dozen,	$19.00	24.00	27.00	30.00	32.00	37.00

One-quarter dozen in a crate. Furnished one-sixth dozen in a crate at an additional charge of 50c per dozen, net.

Extra Heavy.

No. 5—18x36-inch body, 14 and 20-inch wheels, 16 spokes, heavy hubs, tires and spokes, axles 9-16 inch round steel; will hold up 1,000 pounds; weight per dozen, 444 lbs., ... Per Dozen, $53 00

One-quarter dozen in a crate.

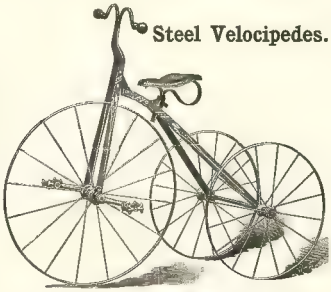
Tricycle Wagons.

No. 22—TRICYCLE WAGON, body 14x34 inches, wheels 12 and 18 inches, malleable iron gear and tinned steel wheels, body of sheet steel, lock-corner handle; weight, each, 38 lbs., . . . Per Dozen, $60.00

The best made—the best finished—the lightest running Tricycle Wagon on the market. The body and back of seat are made of sheet steel, gear is of malleable iron and wheels of tinned steel. The propelling arrangement is made of wrought-iron, and is operated on the same principle as a tricycle. The lock-corner handle can be used either to pull or steer the wagon. The seat and seat boards are hinged and can be folded down, thereby making a perfectly flush bottom

One in a crate.

Steel Velocipedes.



Finished in Black and Neatly Striped, Tinned Wheels, Adjustable Seat, Oval Steel Tires.

No. 1—Wheels 16 and 14 inches, inside leg measure 19 inches; weight, each, 10 pounds, ... Each, $2.50

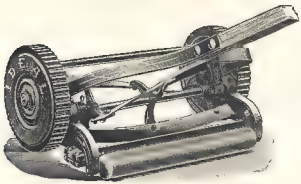
No. 2—Wheels 20 and 16 inches, inside leg measure 21 inches; weight, each, 12 pounds, . . . Each, 3.00

No. 3—Wheels 24 and 18 inches, inside leg measure 22 inches; weight, each, 15 pounds, ... Each, 3.50

No. 4—Wheels 26 and 23 inches, inside leg measure 23 inches; weight, each, 20 pounds, ... Each, 4.20

Lawn Mowers.

Ideal.



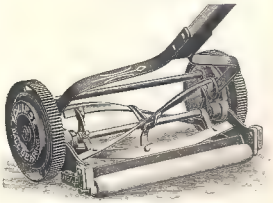
Three blades, improved front bar, adjustable bearings, double geared, hardwood handles, wrought iron handle braces, extra painted, 6 inch reel, 8 inch drive wheel.

Cut, inches,	14	16
Weight, pounds,	42	44
Each,	$4.50	4.50

One in a case.

The Eclipse.

Ball Bearing.

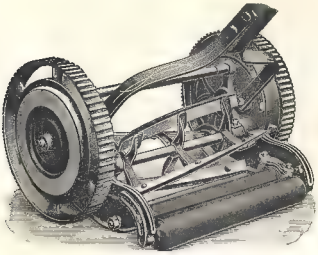


A first-class ball bearing mower at a popular price. Best quality of steel blade, giving a continuous shear. High-grade bicycle bearings; a mower that is very durable and guaranteed to do good work. Wheels 8½ inches, cutting reel 6 inches.

Cut, inches,	14	16	18
Weight, pounds,	40	44	48
Each,	$7.00	7.50	8.50

One in a case.

Mohawk.



High Wheel, 10½ inches.

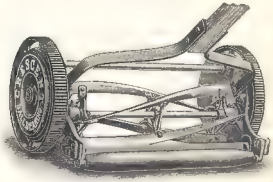
Four blades, improved front bar, patent solid axle bearings and brass box journals. Adjustable cutter bar, extra painted, hardwood handles.

Cut, inches,	14	16	18
Weight, pounds,	48	50	52
Each,	$7.50	8.00	9.00

One in a case.

Crescent.

Ball Bearing.



High Wheel, 10 inches.

Four blades, improved front bar, ball bearing, adjustable cutter bar, painted white and gilt, hardwood handles.

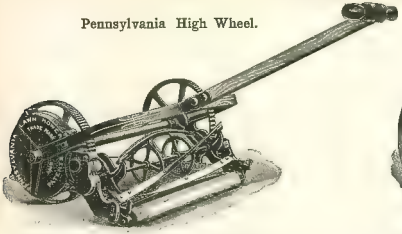
Cut, inches,	14	16	18
Weight, pounds,	45	50	55
Each,	$10.00	11.00	12.00

One in a case.

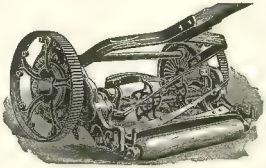
Extra Parts for Lawn Mowers are not carried in stock, and can only be furnished by being sent direct from the factory.

Lawn Mowers.

Pennsylvania High Wheel.



Pennsylvania Ball Bearing Junior.



10½ Inch Driving Wheels, 6½ Inch Reel, Four Cast Steel Cutting Blades.

Cut, inches, . .	15	17	19	21
Weight, pounds, . .	40	42	45	47
Each, ...	$20.00	22.40	24 80	27.20

One in a case.

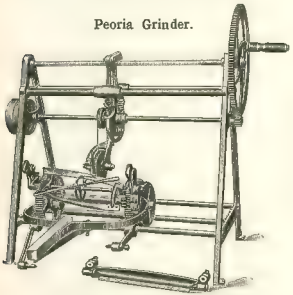
10 Inch Driving Wheels, Double Train of Gears, Five Knives, Self-sharpening.

Cut, inches, ...	15	17	19
Weight, pounds, ...	40	42	45
Each, ...	$21.38	23.94	26.50

One in a case.

Lawn Mower Grinders.

Peoria Grinder.



1907 Model Peoria Lawn Mower Grinder.

Peoria, fitted for hand and power; wt., 105 lbs., Each, $40.00

It will sharpen any hand lawn mower made and do a perfect job No grinder ever constructed that will do what this one will, although it has less parts and fewer wearing places The stone is special, and will grind 300 mowers. Nothing on the market that will compare with it in simplicity, durability and ease of operation

Lawn mowers are not taken apart to sharpen on this machine Old ones are made to cut like new ones and run easier, as the proper clearance is given all blades

The cut shows method of fastening the straight blade. No clamps are used as they often spring the blade Simply bolt the two castings to the bar and swing them on the two centers to any place either to grind the bar on the face or the edge, and at any bevel—this does not spring the bar, and when fixed in this way it is true

If operating with power, it is not necessary to stop the machine until all blades are ground; simply lift top casting out of the threads on the top shaft, push the stone back from the reel and then slide the carriage back to the left side, or starting place, and start on another blade.

Besides sharpening lawn mowers, all kinds of small tools can be ground, such as skates, shears, planes, chisels and all light tools.

All machines fitted for hand and power.

Lawn Mower Sharpeners.

Osborne.

Osborne Lawn Mower Sharpener, Tucker bronze finish, ... Per Dozen, $4.00

There are four good cutting sides to the file, which when worn can be turned by simply loosening the screws in the holder It is simple in construction. The holder has a neat, durable Tucker bronze finish.

One dozen in a display box.

Lawn Trimmers.

Pierce's, 7 inch blades, made of the best quality of steel, ground and tempered, ball bearing movement, malleable castings, 4 foot handles, ... Per Dozen, $25 00

This trimmer has all the features of a hand-shear, as the blades are closed by working the handles, and open by a spring.

Headlights.

No. 20—Tin, tubular, No. 2 cold blast burner, No. 0 cold blast bull's eye tubular globe, 1 inch wick, reflector 7 inch diameter, 12 inch deep, weight per doz., 44 lbs., ... Per Dozen, $36.00

No. 40—MAMMOTH, tin tubular, No. 9 burner, No. 9 chimney, 1½ inch wick, reflector 16 inch diameter, 8½ inch deep; weight each, 8 lbs., . . Per Dozen, 80.00

Nos. 20, half dozen; No. 40, one in a case.

Police Bull's Eye.

No. 2—Japanned, light controlled by slide; weight per doz., 18 lbs., ... Per Dozen, $10.00

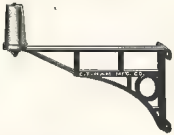
Two dozen in a case.

Street Lamps.

No. 9 Improved globe tubular, outside wick regulator, automatic wick extinguisher, No. 9 globe, No. 9 burner, 1½ inch wick, tin font, patent wind-breaker; weight, 7 lbs., ... Each, $8.00

One in a case.

Street Lamp Brackets.



No. 106—24 inches long; weight, 10 lbs., ... Each, $3.00

Gasoline Torches.

No. 100—One gallon tank, japanned; wt., 4½ lbs., Each, $1.80

One dozen in a crate.

Plumwood Hanging Lamps.

No. A.

Nos. B and C.

Holds One Gallon of Oil, 300 Candle Power, Burns 18 Hours Without Refilling, Oil Registering Dial.

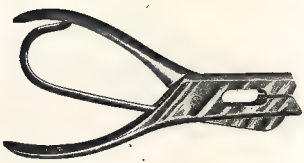
No. A—Polished brass font, 20 inch corrugated tin shade, No. 36 chimney, No. 3 Plumwood wick, ... Each, $6.50

No. B—Polished brass font, 14 inch porcelain dome shade, No. 36 chimney, No. 3 Plumwood wick, ... " 7.30

No. C—Nickel-plated font, 14 inch porcelain dome shade, No. 36 chimney, No. 3 Plumwood wick, ... " 8.00

One in a case; weight, 25 pounds.

Ticket Punches.

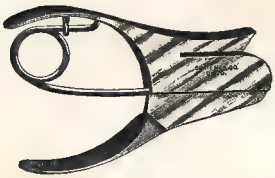


No. 12—Polished, assorted, with fancy dies, length 4½ in.; weight per doz., 2¾ lbs., ... Per Dozen, $5.50

Half dozen in a box.

No. 7—Nickel-plated, assorted, with fancy dies, length 4½ in., ⅞ in. slot; weight per doz., 3 lbs., . Per Dozen, $18.00

Half dozen in a box.

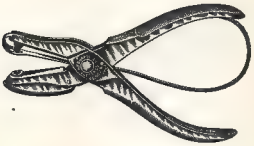


No. 3—CONDUCTORS', highly polished and nickel-plated, single dies, length 4 in.; wt. per doz., 3 lbs., Per Doz., $30.00

One in a box.

No. 23—STREET RAILWAY, nickel-plated, assorted, with fancy dies, length 4½ in.; weight per doz., 3 lbs., ... Per Dozen, $24.00

Half dozen in a box.



No. 260—Nickel-plated wrought steel, assorted dies, length 5 in.; weight per doz., 2½ lbs., . . Per Dozen, $4.50

The clippings are held in a reservoir, which opens and shuts with a spring.

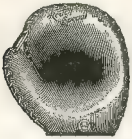
Half dozen in a box.

No. 250—Nickel-plated wrought steel, assorted dies, length 5 in.; weight per doz., 2½ lbs., . . Per Dozen $4.00

Half dozen in a box.

Reach Base Ball Goods.

First Basemen's Mitts.



Nos. 4S, RN and 3RN

These Mitts are especially adapted for first base work. They are constructed to stop widely thrown balls. The material used is the best. Their utility is guaranteed.

No. 4S—"REACH SPECIAL," laced, finest French calf padded with best asbestos felt, leather laced, strap and buckle at wrist, patent laced thumb, and patent deep pocket, made up for professionals who like a mitt without an outside hump. Retails for $4.00, ... Each, $5 50

No. RN—FIRST BASEMEN'S MITT, laced, heavy black buck face, black tan leather back, padded with best felt, strap and buckle at wrist, patent laced thumb, patent inside hump and patent deep pocket. Retails for $2.00, ... Each, 2.80

No. 2R—FIRST BASEMEN'S made of fine olive tan leather, strap and buckle at wrist, padded with felt, patent laced thumb, patent inside hump and patent deep pocket. Retails for $1 50, ... Each, 2.20

No. 3RN—FIRST BASEMEN'S, laced, fine black leather, well padded, patent laced thumb, patent hump and patent deep pocket, strap and buckle at wrist. Retails for $1.00, ... Each, 1.40

All Mitts made in rights and lefts.
One in a box.

Fielders' Mitts.

Nos. 8, 7, 7B and 7C.

Made in rights and lefts.

No. 8—FIELDERS' MITT, fine olive calfskin, new professional pattern, padded with best asbestos felt strap and buckle at wrist, patent laced thumb and patent deep pocket. Retails for $1.50, . . . Each, $2 20

No. 7—FIELDERS' MITT, fine drab buck face, brown leather back, new professional pattern, strap and buckle at wrist, padded with best felt, patent laced thumb and patent deep pocket. Retails for $1.00, ... Each, 1.34

No. 7B—YOUTHS' FIELDERS' MITT, olive tan leather well padded, patent laced thumb and patent deep pocket. Retails for 50c, ... Each, 68

No. 7C—BOYS' FIELDERS' MITT, buck dressed drab leather, patent deep pocket. Retails for 25c, ... Each, 34

One in a box; except No. 7C, six in a box.

Catchers' Masks.

No. 00. No. 0.

No. 00—REACH SUN PROTECTING MASK, used by practically all catchers on league, college, and semi-professional teams. The patent sun shade protects the eyes without obstructing the view; mask is made throughout of finest steel wire, extra heavy gun metal enameled; fitted with molded leather chin strap, patented hair filled pads and special elastic head band, ... Each, $6 00

No. 0—REACH PATENT NECK PROTECTING MASK has an extension at bottom, giving absolute protection to the neck. Best steel wire, extra heavy, gun metal enameled, to prevent the reflection of light. Retails for $3.00, ... Each, 4 00

Nos. 1 and 2.

No. 1—REACH SPECIAL LEAGE, extra heavy steel wire, gun metal enameled, padded and well faced with specially tanned horsehide, strongly put together, well finished, warranted first class and reliable in every particular. Retails for $2.50, . . . Each, $3.20

No. 2—REACH ASSOCIATION, black enameled, heavy steel wire. This style mask has been in constant use for years, and highly endorsed by all players. Retails for $2.00, ... Each, 2 60

Nos. 2½ and XX. No. 3. Nos. C and D.

No. 2½—REACH REGULATION, is made of heavy steel wire, well padded and extra strong, bright finish, special elastic head band. Retails for $1.50, ... Each, $2.10

No. XX—REACH AMATEUR, of same size and general style as the Association masks, but of lighter bright steel wire, well padded and strongly constructed. Special elastic head band. Retails for $1.00, Each, 1.40

No. 3—REACH AMATEUR MEN'S, heavy wire, well padded and finished in the best manner; no head or chin piece. Retails for 75c, ... Each, 1 00

No. C—REACH YOUTHS', heavy wire, well padded, without head or chin piece. Retails for 50c. . . . Each, .68

No. D—REACH YOUTHS', light wire, padded, without head or chin piece. Retails for 25c, ... Each, .36

Reach Catchers' Mitts.

The Reach Patent Lacing device, the original and only practical one, enables a ball player using a Reach Mitt to adjust the padding to suit his fancy

Nos. 6A.

Nos. 2A and 3A.

No. 6A—REACH PERFECT laced; finest quality brown calfskin, face and strip of one piece, special hand sewed and hand formed pad of the best asbestos felt forming a special inside hump. Strap and buckle at the wrist Retail for $8 00, Each, $11 00

No. 3A—REACH SPECIAL LEAGUE, laced; the finest quality drab buckskin, with Russia calf strip, double stiffening on edge to protect fingers, patent hump, patent laced thumb and patent deep pocket, strap and buckle at wrist, padded with best asbestos felt, all parts double stitched. Retails for $6 50. . . . . Each, 9 50

No. 2A—REACH SPECIAL LEAGUE, laced, finest brown French calf, double stiffening on edge and back to protect fingers, patent hump, patent laced thumb, and patent deep pocket, strap and buckle at wrist, padded with best asbestos felt, all parts double stitched. Retails for $6.00, ... Each, 9 00

Packed one in a box.

Face of Nos. A, B and C.

Face of No. 30

No. A—Finest pearl colored calfskin face and back, olive calfskin strip and fingers, edge stiffened to protect fingers, all parts double stitched, patent laced thumb, and patent deep pocket, strap and buckle at wrist. This mitt is sure to give satisfaction; padded with best asbestos felt. Retails for $5 00, ... Each, $6 50

No. 30—Finest drab buck face and fingers, brown calf strip and back, all parts double stitched, strap and buckle at wrist, patent inside hump, patent laced thumb and patent deep pocket, padded with asbestos felt, half laced; retails for $4 00, Each, 5 50

No. B—Finest brown buckskin face and fingers, the strip and back of the finest pearl colored calfskin, patent laced thumb and patent deep pocket, strap and buckle at wrist, full laced. Retails for $2 50, ... Each, 4 00

No. C—Finest mouse color buckskin face, brown tan leather back, brown calf strip, patent hump, patent laced thumb and patent deep pocket, strap and buckle at wrist, full laced. Retails for $2 50, ... Each, 3 00

One in a box.

Face of Nos. D, 150 and FP.

Back of Nos. D, 150 and FP

No. D—Finest drab buckskin face, olive leather fingers, back and strip, sole leather finger protector, patent laced thumb, and patent deep pocket, strap and buckle at wrist, full laced. Retails for $2 00, ... Each, $2 70

No. 150—Indian tan buck face, Craven fingers back and strip, patent laced thumb and patent deep pocket, strap and buckle at wrist, full laced. Retails for $1 50, . . . Each, 2 00

No. FP—Fine drab deerskin finish leather, face and fingers, brown tan leather back and strip, patent laced thumb and patent deep pocket, strap and buckle at wrist. Retails for $1 00, ... Each, 1 34

One in a box.

Nos 100, 65, H and 26

No. 100—Fine brown tan leather face and back and fingers, Craven strip patent laced thumb and patent deep pocket, large size. Retails for $0.75, ... Each, $1 10

No. 65—Fine buck dressed drab leather face and canvas back, olive tan strip and fingers, patent laced thumb and patent deep pocket. Retails for 50c . Each, 68

No. H—YOUTH'S, fine buck dressed drab and olive tan leather, patent laced thumb and patent deep pocket, ... Per Dozen, 4 30

No. 26—YOUTH'S CATCHERS' MITT fine buck dressed drab and olive tan leather, canvas back, patent laced thumb and patent deep pocket, retails for 25 cents. . . . . Per Dozen. 4 00

No. 100, one; No. 65, three; Nos. 26 and H, six in a box.

Foot Ball Sundries.

Reach Foot Balls.

A feature of the Reach Foot Balls, and found in no others, is perfect shape. A patent process of manufacture enables the factory to make them so that they will retain their shape.

No. 5—INTER-COLLEGIATE, made of selected imported pebble grain leather; a type of the perfect foot ball; true in all its proportions, perfectly symmetrical; put up complete with rubber bladder, pump for inflating, lacing needle and leather lace; retail price, $3.50, ... Each, $5.00

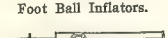
No. 5R—MATCH, made of superior American grain leather, lined with best canvas, guaranteed perfect shape, put up complete with bladder, lacing needle and leather lace, regulation size; retail price, $3.00, ... Each, 4.00

No. 5C—ACADEMIC, made of selected American pebble grain leather, lined with best canvas, guaranteed perfect shape, put up complete with bladder, lacing needle and leather lace, regulation size; retail price, $2.50, ... Each, 3.50

No. 5F—SCHOLASTIC, made of fine American pebble grain leather, put up complete with rubber bladder, lacing needle and leather lace, regulation size; retail price, $2.00, . . . Each, 3.00

No. 5M—PRACTICE, made of fine pebble leather, canvas lined and guaranteed to hold shape, complete with bladder, regulation size; retail price, $1.00, ... Each, 1.50

Foot Ball Inflators.



Pocket Size.

No. 1—BRASS INFLATOR, made of brass, nickel-plated and polished, convenient in size and quick in action, the cylinder is 5½ inches long and diameter ¼ inch, extreme length closed, 7½ inches, retail price. $0.25 . . . . . Per Dozen, $3.00

Reach Foot Ball Bladders.

No. E5—For No. 5 Rugby Foot Balls; retail price, $1.00, ... Per Dozen, $16.80

No. 5R—For 5R and 5C Rugby Foot Balls; retail price, $0.90, ... Per Dozen, 14.40

No. 5S—For 5F, 5M and 50 Rugby Foot Balls; retail price, $0.60, ... Per Dozen, 10.80

Foot Ball Shin Guards.

Best Material, Finest Workmanship.

The straps on all Reach Shin Guards are full length and put on a new way making them extra strong.

No. 1—INTER-COLLEGIATE, best black grain leather, men's size, straps across the entire width of guard, well padded, leather bound, cane ribs; retail price, $1.50 per pair, ... Per Dozen Pairs, $24.00

No. 5—BLACK LEATHEREETTE, men's size, cane ribs, well padded, leather bound, the best canvas guard made, extra strong; retail price, $1.00 per pair, Per Dozen Pairs, 16 80

No. 6—BLACK CANVAS, men's size, cane ribs, well padded, a good guard at the price; retail price, $0.75 per pair, ... Per Dozen Pairs, 12 00

Reach Head Harness.

Nos. 1 and 4.

No. 3.

No. 1—Made of grain leather, lined with best white felt. The best ventilated head harness made. Adjustable to any size head. Extra long in back to protect base of brain, ... Each, $2.70

No. 3—Made of brown leather, lined with white felt, adjustable to any size head. Extra long in back to protect base of brain, ... Each, 2.10

No. 4—Made on same pattern as the No. 1 except that it has no extension on back and is made of cheaper material. A good harness at the price, ... 2.00

All our head gear is made adjustable.

Reach Leather Wrist Supporters.

No. 1—Fine grain leather, single; retail price, .25, . Per Dozen, $4.00
No. 0—Good leather, single; retail price, .10, . . . " 2.40

Reach Ankle Supporters.

These supporters are made to be worn over stocking. They relieve pain immediately, cure a sprain in a remarkably short time strengthen and prevent turning of the ankle. They are invaluable in foot ball, base ball, and other athletic contests. Made in all sizes.

No. L—Made of the finest Russia calf; retail price per pair, $1.00, ... Per Pair, $1.40

No. K—Made of fine sheepskin; retail price per pair, .50, ... Per Pair, .70

No. C—Made of fine canvas; retail price per pair, .25, " .40

Reach Base Ball Bats.

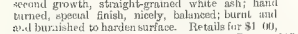
Endorsed by all the leading batsmen of the American and National Leagues

Tape Wound Handles.

No. 6-0—REACH "BURLEY," highest grade selected, second growth, straight-grained white ash; hand turned, special finish, nicely, balanced; burnt and and burnished to harden surface. Retails for $1 00, . . . Per Dozen, $15 00

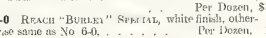
No. 5-0 REACH "BURLEY" SPECIAL, white finish, otherwise same as No 6-0. . . . . Per Dozen, 15 00

One dozen in a crate.



No. 2M—REACH "PERFECT BALANCE," highest quality, second growth white ash; on a special model which enables the player to get a more even distribution of the weight than they can with the old models; special white finish, taped handle. . . . . Per Dozen, $15 00

One dozen in a crate.



No. 3-0 REACH "SPECIAL," high grade second growth white ash, hand turned, burnt and burnished, special finish, finest quality. Retails for 75c. . . . . Per Dozen, $12 00

One dozen in a crate.

No. 0 REACH "LEAGUE," selected second growth white ash, special finish; the best bat on the market at the price; assorted lengths and weights. Retails for 50c, ... Per Dozen, $8 00

One dozen in a crate.

No. 2A—"SPECIAL FINISH," good quality ash; assorted lengths and weights; best men's bat at the price Retails for 25c, ... Per Dozen, $4 00

No. 3A BOY'S "RED BAND," made of extra quality of white ash; length, 31 to 33 inch, Red Band Trade Mark on each bat; assorted weights. Retails for 25c, Per Dozen, $4 00

One dozen in a crate.

No. 7 BOYS', ash, highly polished, red end, 30 inches long; best bat on the market at the price. Retails for 10c, ... Per Dozen, $1.60

Three dozen in a crate.

No. 9—BOYS', plain ash, 30 inches long; best 5 cent bat made, ... Per Dozen, $0 80

Three dozen in a crate.

Inflated Catchers' Body Protector

Gray Patent Protectors, the only practical device for the protection of catchers and umpires. They are made of the best rubber, inflated with air, light and pliable, and do not interfere with the movements of the wearer under any conditions. When not in use air may be let out and the protector rolled in a very small space.

No. 1 —REACH LEAGUE. Retails for $5.00, . . . Each, $7.50
No. 1A -REACH MEN'S AMATEUR, full size. Retails for $4 00, ... Each, 6.00
No. 2A -REACH MEN'S SPECIAL, full size. Retails for $3 00, ... Each, 4.50
No. 1B—REACH BOY'S AMATEUR. Retails for $2 50, ... Each, 3 50

Reach Score Books.

Harry Wright System.

No. 1—Pocket size, paper cover, 7 games, retails for 10c, ... Each, $0.12
No. 2 Pocket size cloth cover, 22 games, to retail for 25c. Each, .30
No. 3—Pocket size, cloth cover, 50 games, retails for 50c, ... Each, 60
No. 4 Club size, cloth cover, 30 games, retails for 75c, Each, 1.10

Reach Scoring Tablets.

A simple, convenient and accurate device for the record of runs and outs. It is made of celluloid and can be carried in the vest pocket.

Reach Scoring Tablets, retails 25c each, . Per Dozen, $4 00

Umpire Indicators.

For the use of base ball umpires and scorers, to keep tally of the number of strikes and balls that may be called.

Indicators, celluloid, retails for 50c each, Per Dozen, $7 20

Base Ball Guides.

Reach Official American League Guide, contains everything you want to know about base ball, latest edition, ... Each, $0.14

Pocket and Hunting Knives.

Cuts full size.

No. 1100.

No. 1108.

No. 3009.

No. 0020.

No. 1100—One blade, ebony handle, iron lining, iron bolster, glazed finish, $5\frac{1}{2}$ in., . . Per Dozen, $14.00

No. 1108—One blade, lock spring back, stag handle, brass lining, German silver bolster, glazed finish, $4\frac{3}{8}$ in., ... Per Dozen, 15.00

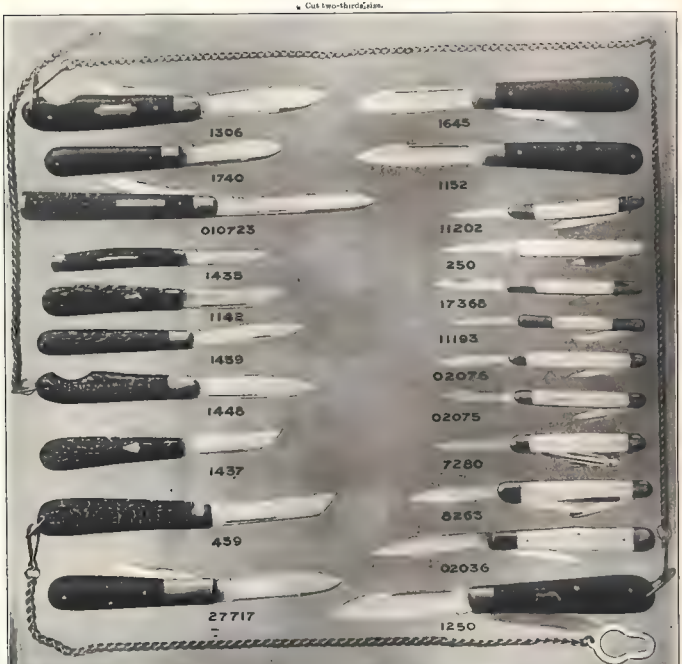
No. 3009—One blade, stag handle, German silver bolster, full crocus finish, lock spring back, $3\frac{3}{4}$ in., ... Per Dozen, 24.00

No. 0020—Hunting knife with leather sheath, stag handle, 6 in. blade, ... " 18.00

Half dozen in a box.

German Pocket Knives.

Cut two-thirds size.



No. 1306—Two blades, rosewood handle, 3⅞ in., 18 in. chain, ... Per Dozen, $ 3.50
No. 1740—One blade, rosewood handle, 2⅞ in., " 1.50
No. 010723—Two blades, stag handle, 3⅞ in., " 9.00
No. 1435—One blade, iron handle, 2⅞ in., . " .70
No. 1142—One blade, iron handle, 2⅞ in., . " .70
No. 1459—One blade, iron handle, 3 in., . . " .70
No. 1448—One blade, iron handle, 3 in., 12 in. chain, ... Per Dozen, 1.70
No. 1437—Two blades, iron handle, 2⅞ in., " 1.20
No. 459—One blade, iron handle, 3⅞ in., 12 in. chain, ... Per Dozen, 1.70
No. 27717 Two blades, ebony handle, 3⅞ in., " 3.00
No. 1645—Two blades, rosewood handle, 3⅞ in., " 2.00
No. 1152—One blade, rosewood handle, 3⅞ in., Per Dozen, $1.50
No. 11202—Two blades, pearl handle, 2⅞ in., " 6.00
No. 250 Two blades, pearl handle, 3 in., . " 8.00
No. 17368—Two blades, pearl handle, 2⅞ in., " 4.00
No. 11193 Two blades, pearl handle, 2⅞ in., " 4.00
No. 02076—Two blades, pearl handle, 2⅞ in., " 8.00
No. 02075—Two blades, pearl handle, 2⅞ in " 8.00
No. 7280 Two blades and file, pearl handle, 2⅞ in., ... Per Dozen, 8.00
No. 8263—Four blades, pearl handle, 3 in., . " 12.00
No. 02036—Two blades, pearl handle, 3⅞ in., " 12.00
No. 1250—Two blades, ebony handle, 3⅞ in., 18 in. chain, ... Per Dozen, 3.50

Knives listing $3.00 and less, one dozen; balance, half dozen, in a box

Silver-Plated Spoons and Butter Knives.

Wm. A. Rogers' Ardsley Pattern.

Ardsley Pattern, Extra Plate.

	Teaspoons	Dessert Spoons	Tablespoons
Per Dozen,	$2.00	$3.50	$4 00

One dozen in a box.

Ardsley Sugar Shells, EXTRA PLATE, ... Per Dozen, $6.00

One dozen in a box.

Ardsley Butter Knives, EXTRA PLATE. . . . . Per Dozen, $6.00

One dozen in a box.

Cut Glass Butter Knives.

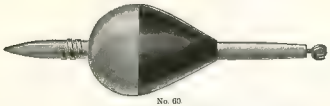
Cut full size.

No. 1110C—BUTTER KNIVES, Cut-glass handles, triple-plated blades and ferrules, ... Each, $1.50

One in a satin-lined box.

Floats.

Excelsior Wood Floats.



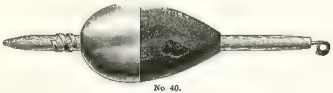
No. 60

Adjustable, Wood Stick, Painted in Three Colors and Varnished.

Nos.,	60	61	62	63	64
Inches,	1½	1¾	2	2¼	2½
Per Dozen,	$0.30	.40	.44	.50	.60

One dozen in a box.

Egg-Shape Cork.



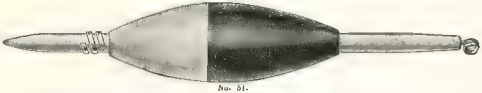
No. 40.

Adjustable, Egg-Shape Cork, Wood Top, Painted in Two Colors and Varnished.

Nos.,	40	41	42	43	44	45
Inches,	1¾	2	2¼	2½	4	4½
Per Dozen,	$0.80	1.00	1.30	1.50	5.50	7.50

One dozen in a box.

Barrel-Shape Cork.



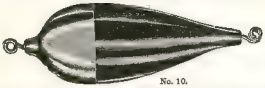
No. 51.

Adjustable Barrel-Shape Cork, Wood Top, Painted in Two Colors and Varnished.

Nos.,	50	51	52	54
Inches,	2	2½	3	4
Per Dozen,	$0 60	.90	1.50	2.40

One dozen in a box.

Eureka Patent Enamel Adjustable Coil Spring Float.



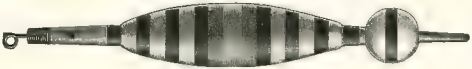
No. 10.

Eureka Patent Enamel Adjustable Coil Spring Float Egg Shape, Two Colors.

Nos.,	10	20	30
Inches,	2½	3	3½
Per Dozen,	$0.60	.80	1.10

One dozen in a box.

Zebra Pilot Ball Cork Floats.



No. 4Z.

Adjustable, Enameled in Fancy Colors.

Nos.,	1Z	2Z	22Z	3Z	42Z
Length (inches),	1¾	2	2½	3	4½
Per Dozen,	$1.20	1.40	1 80	2.00	3.50

One dozen in a box.

Fame, Famine and Philosophy.

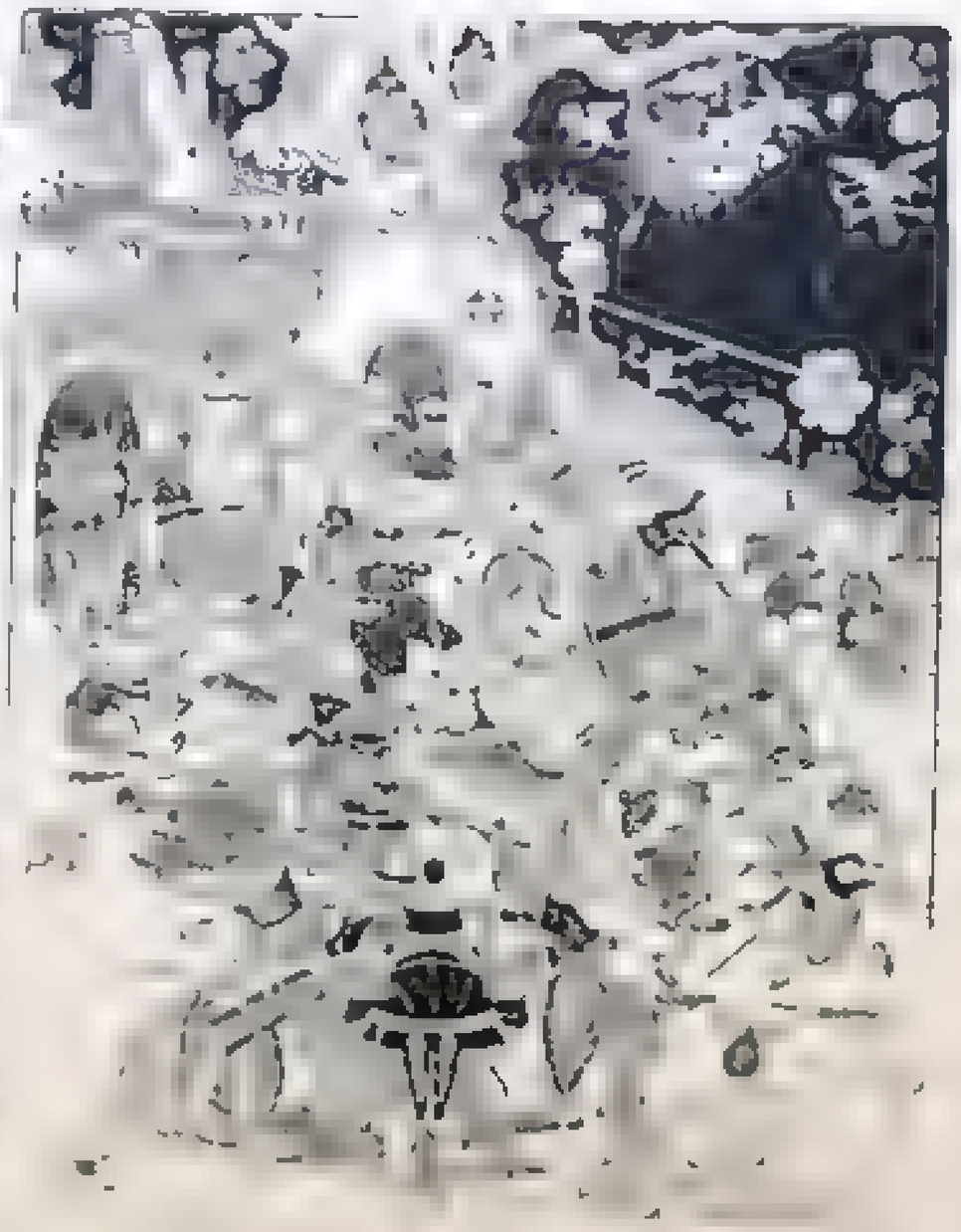
THE [illegible]

[illegible] and th[illegible] nettle strew the paths [illegible] but on the fields of Mars the bay th[illegible] bayonet and the band wagon are the chief feature[illegible]

[illegible] and fame ne has [illegible] [illegible]er of this practical age to look askance at Fame, and to seek a good working substitute for it. The average man respects his stomach, and like[illegible] vacuum "in his midst." As between a slab-covered hole in Westminster Abbey and a steak at the Star and C[illegible] a bronze in Central Park and a bird at Delmonico's, [illegible] plain man will choose the steak and bird every time. Lazarus reclining on Abraham's bosom, taking a bird's-eye view of the broiling and thirsting Dives, does not excite the contemporaneous human interest which is stirred by the realism of the well-fed Dives inviting the Police to chase Lazarus off his premises. Humanity [illegible] fers a chair at a well-laden table of Dives [illegible] seat on Abraham's bosom; and it is indifferent to the verdicts of posterity, whether written on the pag s of history or the faces of tombstones. Men have learned that the praises of posterity do not pacify the pangs of poverty; and experience has taught them that a perishing poet would pawn all the pedestals on Parnassus for a pot of Pilsener and a plate of pig's feet.

In this material age [illegible] me is being laid away in cold storage vaults for the use of posterity, and its parvenu and commercialized brother, Notoriety, is found to be more filling and satisfactory for contemporary purposes. A practical age observes that Fame is post-mortem and postponed, while Notoriety is post-prandial and prompt; and it believes it is better to be Johnny-on-the-[illegible] Patience-on-a-Monument. Moreover, Fame pays no dividends and looks coldly on the pleasures of pot, palate and pantry; while Notoriety eats, drinks and is nervy, has his photo in the press, and keeps an auto and a chef.

Fame casts its bread upon the waters; Notoriety casts its bread on the terrapin and fizz; and man is loath to endorse a diet of bread and water. Lives of great men all [illegible] and the ridiculous. Fame and [illegible]ed by the judicious, and the shrewd are, and should be, content with Notoriety and the full dinner pail. The world gave Nathan Hale a rope and a bronze statue, and awarded Funston a Generalship and a salary. Homer begged his bread in seven cities, died and achieved fame, and Alfred Austin lives to dodge bricks in seven languages, and spend a pension. Poe had poetry, poverty and pangs; while Rockefeller has millions and has acquired a halo. So runs the world away.



HUCKLEBERRY HOLLOW HOLDS ITS ANNUAL FOURTH OF JULY [illegible]

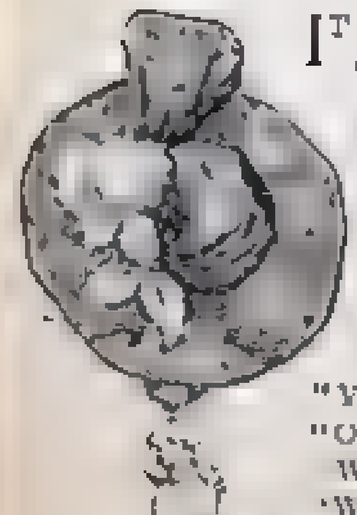
Better a cinch on a bill of fare, than a blazon in a but[illegible] of fame; better beefsteak and onions on an empty stomach, than a marble slab with a Latin epitaph.

The tough and thorny cactus grows in the thirst and desolation of the desert, and once a year it puts forth a radiant bloom to glorify the silent wastes, unseen of man. That flower, the crowning glory of a struggle with all of Nature's antagonisms, is Fame. Its beauty and sweetness appeal to the dreamer and rainbow-chaser, who sing its glories when it dies. The practical world eschews the desert; it culls its posies in more pleasant places; and it prefers to wear upon its bosom the more gorgeous blossom of notoriety—the Lawson Pink.

Joseph Smith

"HURRAH! THE FIRST POTATO VINE IS UP"

All About a Hat



IT was f[illegible] day before I [illegible] Von Blume[illegible] about to close h[illegible] with a bang, and go home, when the telephone bell rang. It was his wife's voice.

"Is that [illegible]?"

"Yes."

"Oh, I'm in awful trouble."

"W[illegible]?"

"W[illegible] hat hasn't come."

"W[illegible]?"

"Why, my Easter hat, of course. The milliner promised it faithfully this morning."

"W[illegible] day isn't over."

"But you know how busy they are, [illegible]."

"Well, well?"

"Do me a favor, will you? I'm so anxious about that hat. Now the milliner's [illegible] on the way, stop in and get [illegible]."

"W[illegible]?"

"That's a good fellow. I simply must have it. It isn't out of your way."

"Do you want me to fetch it home?"

"Certainly. You won't mind, I'm sure."

"Umph! How large is it?"

"Oh, it's in a box. Light as a feather."

"No, no! *Excuse me.*"

"But I've got to have it."

"Well, I—"

"Just this once. *Please.*"

"Well, it's a mean trick, but all right. I'll bring it home. What's the address?"

Von Blumer stopped off on a side street at the place indicated. In a moment, as he entered, he felt as if he had suddenly dropped in at an afternoon tea. He explained his object, and, humiliated beyond measure by his surroundings, waited his turn.

At last a girl came out with a large white watered-silk looking pasteboard box.

Von Blumer, groaning inwardly, calculated the cubic contents mentally with his eye. He wondered pathetically if he would be able to get it through the street.

There was, however, no help for it, so he grasped the tape that fastened it as well as he could and started on his homeward journey.

First he held the box on one side, and then on the other. But it made little difference. It was uncomfortable any way. If he held it too low, it banged his legs as he walked. If he h[illegible] too high the strain on his [illegible] was t[illegible]. He tried to hold it in front of him, but his wrist got a cramp. He put both arms around it and almost fainted from exhaust on.

As he walked along he became conscious of a deep and deadly hatred toward his wife. He never supposed

WHEN THE SALARY LIST WAS MADE UP

"NO, [illegible] WITH THEIR [illegible] THE [illegible] THE [illegible] ALL [illegible]

A NEW SCHEME.

[illegible]

THE EASTER PARADE IN BEETLEBURG

MISS SPARROW CREATES A SENSATION WITH HER NEW FIREFLY BONNET

Fame, Famine and Philosophy.

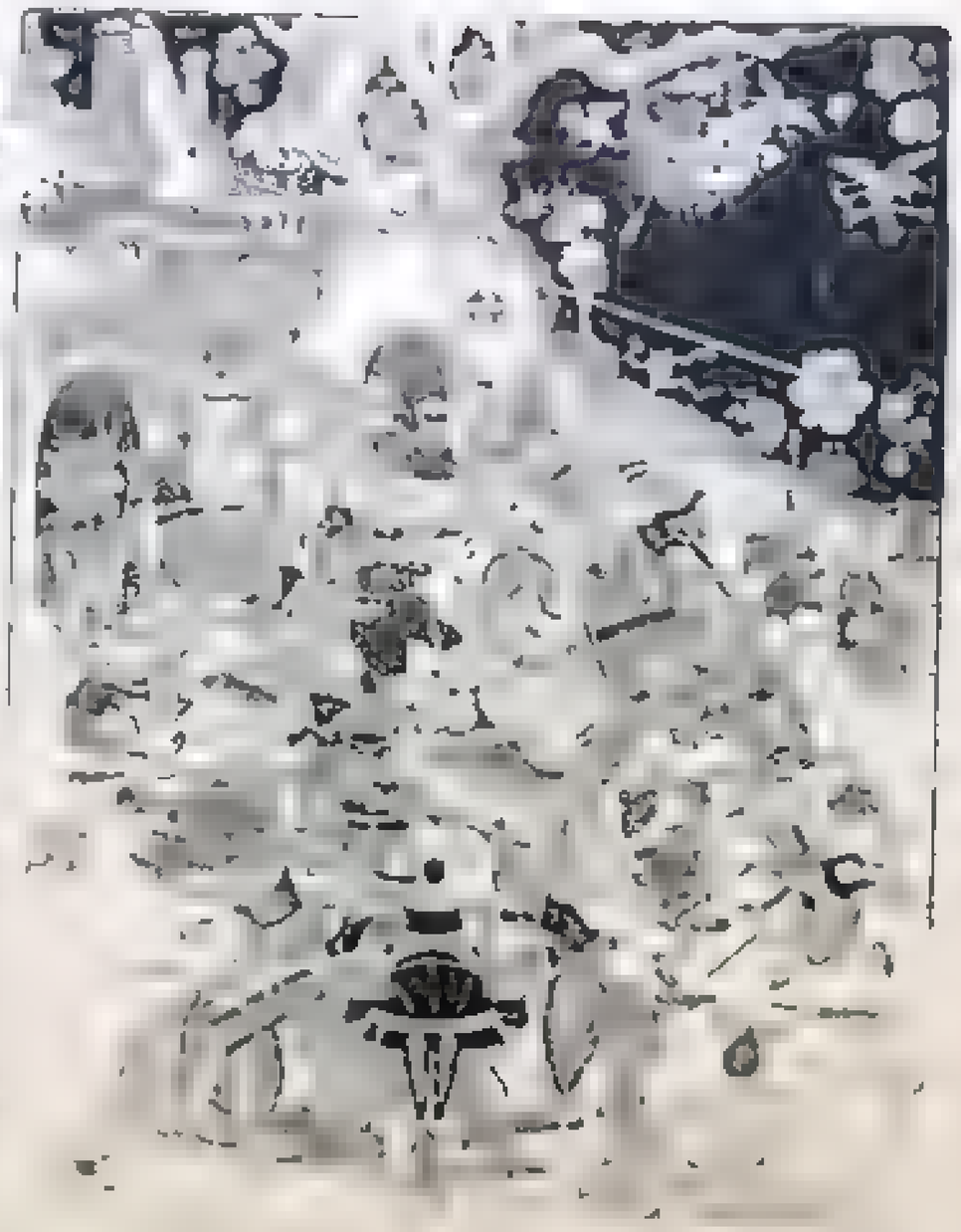
THE [illegible]

[illegible] and th[illegible] nettle strew the paths [illegible] but on the fields of Mars the bay th[illegible] bayonet and the band wagon are the chief feature[illegible]

[illegible] and fame ne has [illegible] [illegible]er of this practical age to look askance at Fame, and to seek a good working substitute for it. The average man respects his stomach, and like[illegible] vacuum "in his midst." As between a slab-covered hole in Westminster Abbey and a steak at the Star and C[illegible] a bronze in Central Park and a bird at Delmonico's, [illegible] plain man will choose the steak and bird every time. Lazarus reclining on Abraham's bosom, taking a bird's-eye view of the broiling and thirsting Dives, does not excite the contemporaneous human interest which is stirred by the realism of the well-fed Dives inviting the Police to chase Lazarus off his premises. Humanity [illegible] fers a chair at a well-laden table of Dives [illegible] seat on Abraham's bosom; and it is indifferent to the verdicts of posterity, whether written on the pag s of history or the faces of tombstones. Men have learned that the praises of posterity do not pacify the pangs of poverty; and experience has taught them that a perishing poet would pawn all the pedestals on Parnassus for a pot of Pilsener and a plate of pig's feet.

In this material age [illegible] me is being laid away in cold storage vaults for the use of posterity, and its parvenu and commercialized brother, Notoriety, is found to be more filling and satisfactory for contemporary purposes. A practical age observes that Fame is post-mortem and postponed, while Notoriety is post-prandial and prompt; and it believes it is better to be Johnny-on-the-[illegible] Patience-on-a-Monument. Moreover, Fame pays no dividends and looks coldly on the pleasures of pot, palate and pantry; while Notoriety eats, drinks and is nervy, has his photo in the press, and keeps an auto and a chef.

Fame casts its bread upon the waters; Notoriety casts its bread on the terrapin and fizz; and man is loath to endorse a diet of bread and water. Lives of great men all [illegible] and the ridiculous. Fame and [illegible]ed by the judicious, and the shrewd are, and should be, content with Notoriety and the full dinner pail. The world gave Nathan Hale a rope and a bronze statue, and awarded Funston a Generalship and a salary. Homer begged his bread in seven cities, died and achieved fame, and Alfred Austin lives to dodge bricks in seven languages, and spend a pension. Poe had poetry, poverty and pangs; while Rockefeller has millions and has acquired a halo. So runs the world away.



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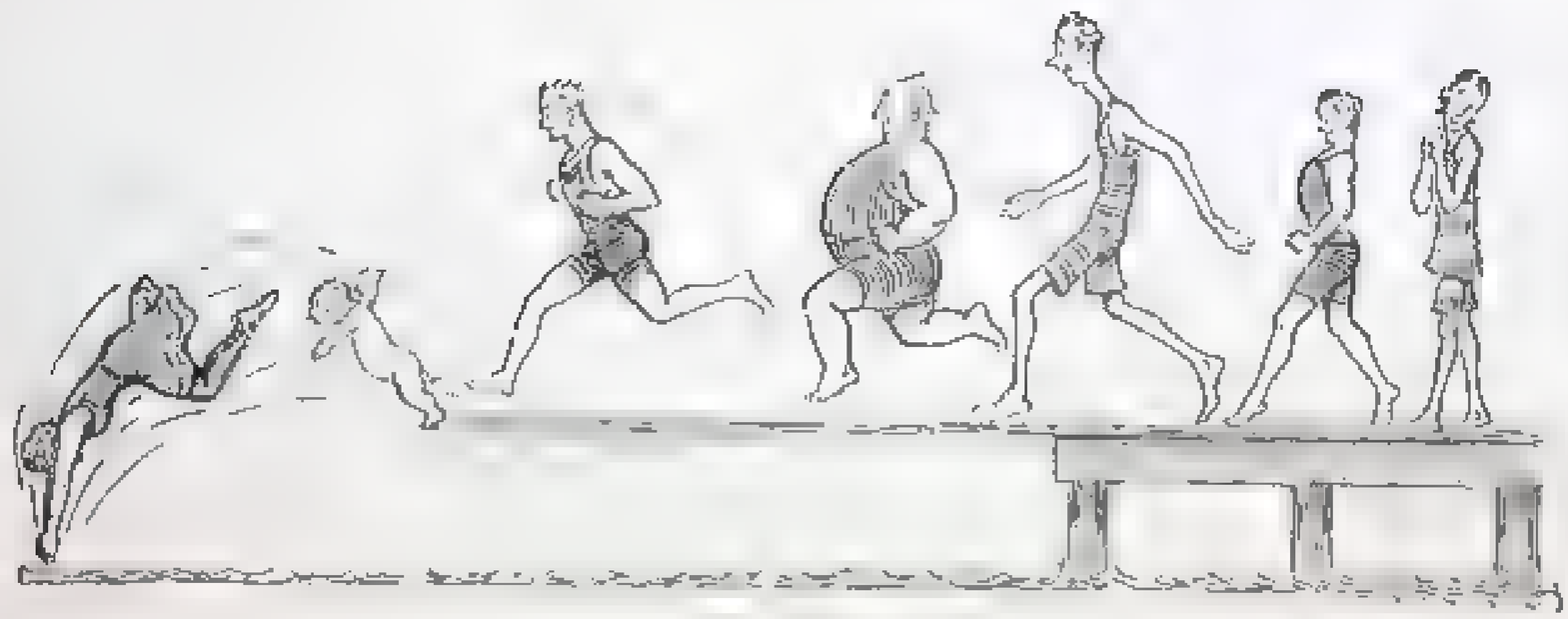


ANCIENT GAME
"FOLLOW YOUR LEADER"

Our E. S. M.

WE are reprinting this graceful tribute from the New York *Tribune* without the sanction and without the knowledge of Mr. Martin. His modesty might lead to objections.

"E. S. M., A.M. (HARVARD)

The season has now arrived when the heavens open and a flood of degrees falls upon the righteous and the unrighteous with reasonable impartiality. The circumstance has become so familiar that it is only occasionally that some particularly happy bestowal commands general interest.

There are, however, many thousands of men who will find pleasure in the fact that Harvard has honored herself and Edward Sandford Martin by conferring upon him the degree of Master of Arts.

Mr. Martin is a man to whom the dress of a "being" exactly suits, as we say in parenthesis to Harvard. Although she claims him as a son, cannot now annex his place in our hearts. Every year he has brought us week by week a store of kindly wisdom, of good philosophy, of cheerful kind and true feeling. If his sword is a sharp point, its wound is never without balm, and there is no sting.

In these last two years Mr. Martin has been the most [illegible] spokesman for that old America which is an reverent memory, and for that new America which holds in our hope and [illegible]. Harvard has done well to share her honors with a man who has brought to his [illegible] matter much humor and [illegible] pleasure and real profit.

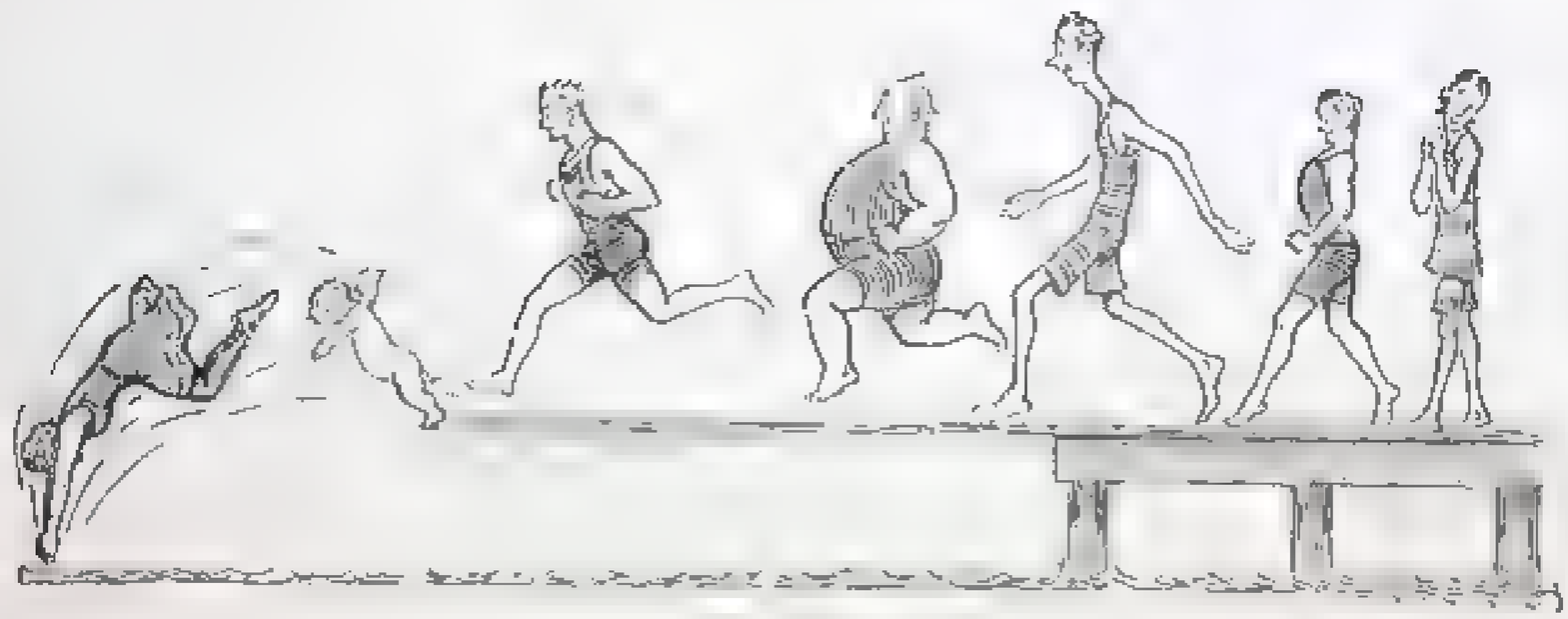
Disqualified

My ignorance I oft display
Of matters aeroplanes and [illegible]
I shy from hoky brutes who stray
Into the tears and [illegible] trips
I'm stupid at detective "trips"
I bask a war so crude and [illegible]
Thus from my brow the laurel slips:
I cannot write the modern story!

I am not keen for plots outré
My pen from sex researches skips
I don't enjoy a dreary [illegible]
With yearnin' [illegible] and [illegible]
Lips
My hero never rants and raps
With rhetoric [illegible]
Too much for me [illegible] the
[illegible]
I cannot write the modern story!

Corinne Rockwell Swain

"COME BACK AWAY, WHERE FIREFLY. I AIN'T TOLD YOU NEVER TO TAKE COLD DRINKS WHEN YOU ARE OVERHEATED?"



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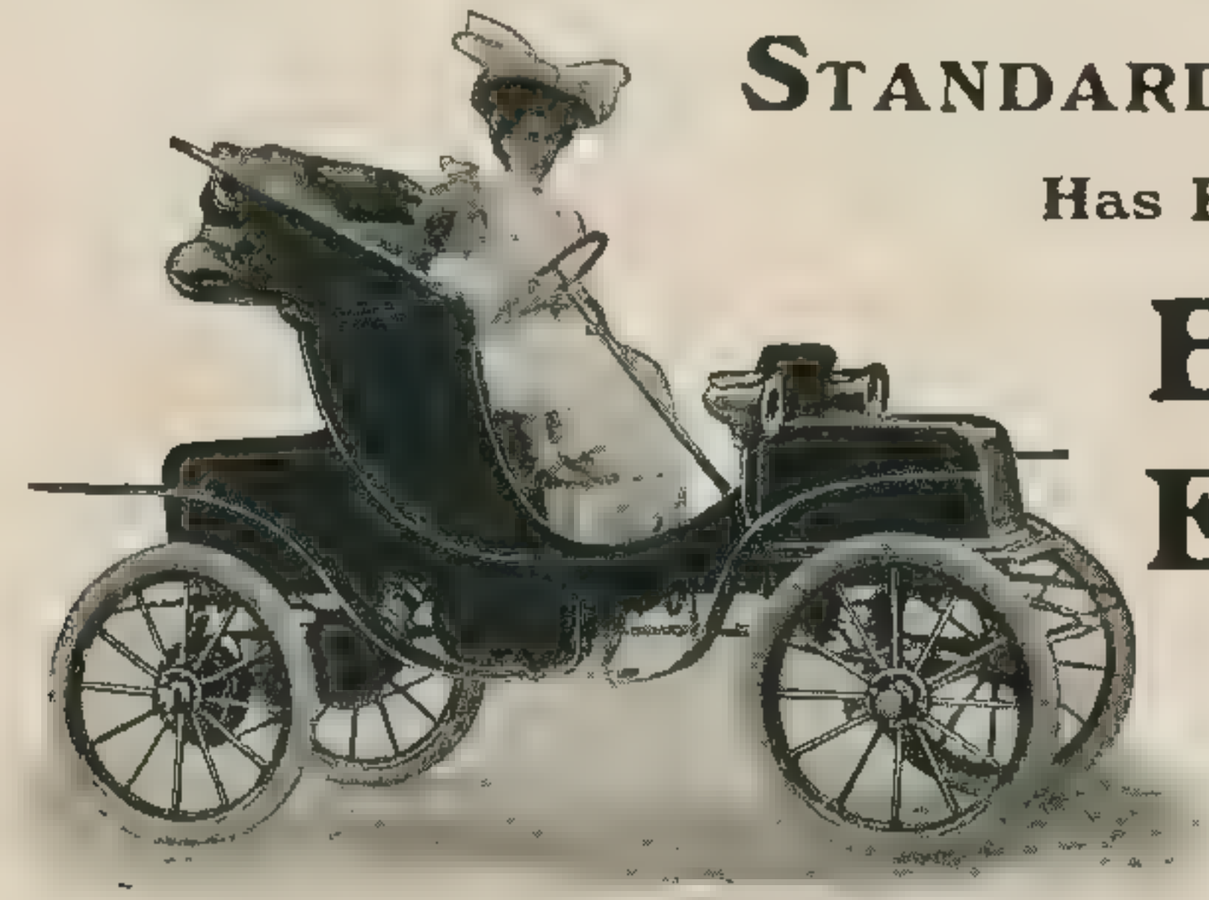
"COME BACK AWAY, WHERE FIREFLY. I AIN'T TOLD YOU NEVER TO TAKE COLD DRINKS WHEN YOU ARE OVERHEATED?"

STANDARD OF EXCELLENCE

Has Been Attained in

BABCOCK ELECTRICS



Model 6, Victoria. Price, $1700

These cars combine all the elements of safety and comfort with sufficient speed, besides greater mileage than is required in city or suburban riding.

The popularity of the Babcocks is the best proof of their merit.

"When you build right, It is right, and works right."—BABCOCK.

Five Models. Write for Catalogue.

BABCOCK ELECTRIC CARRIAGE CO., BUILDERS

230 West Utica Street, BUFFALO, N. Y.

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ON
THE
BOARD
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ALWAYS
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CHALFONTE

ATLANTIC CITY, N. J.

Is a new Fireproof building of the best type.
THE LEEDS COMPANY solicits your patronage
Write for Illustrated Folder and Rates

ALASKA

On Summer Seas

Five special Summer excursions on the Pacific Coast Steamship Co.'s S. S. "Spokane," leave Seattle, Victoria and Vancouver June 16, July 1, 16 and 31, and August 15, for a fortnight's cruise through the wonderful inner channel of the Alaskan coast, among thousands of beautiful islands, past lofty mountains and noble glaciers, stopping at interesting Indian villages and trading stations. *No seasickness.*

Burton Holmes Says of the Trip:

"It is the Alaska of the tourist—the Alaska of fiords and glaciers, islands, mountains, fish-filled rivers, timber towns, and totem poles. It is our American Norway—this channel-intersected Archipelago, through which the traveler cruises."

Special low rate tickets on sale from all points via the

Chicago & North Western Ry.

Steamship rate, including meals and berth, $100

Send for free time-tables, itineraries and Alaskan map.

W. B. KNISKERN, Passenger Traffic Manager, C. & N. W. Ry., Chicago, Ill.

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Europe A SELECT TWO MONTHS' SUMMER TOUR—ONLY **$250** Best tours, extending to British Isles, Holland, Belgium, Germany, Roumania, Turkey, Greece, Austria, Italy, Switzerland

16 Ft. Steel Launch with

CREAM OF WHEAT IS READY

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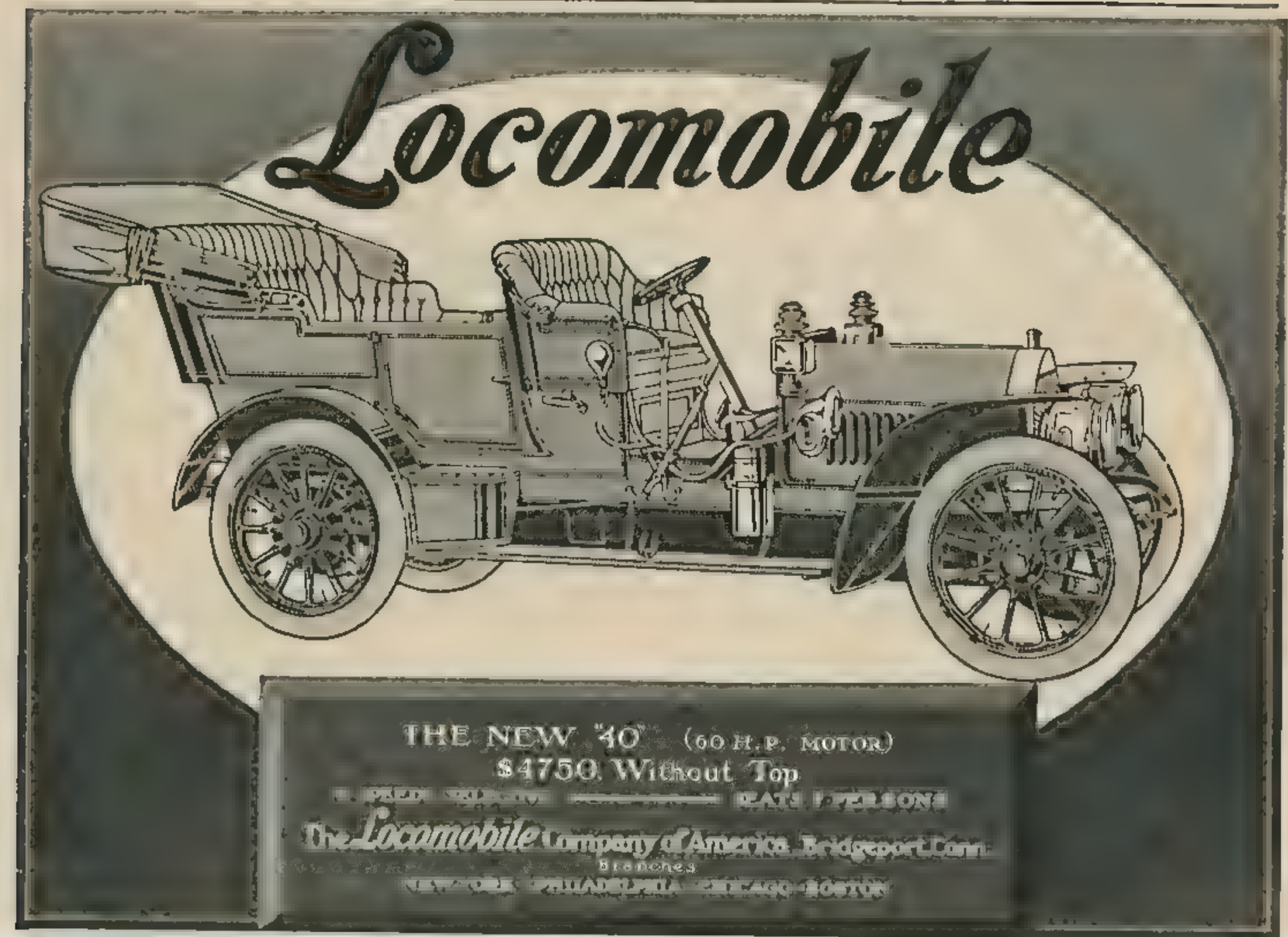
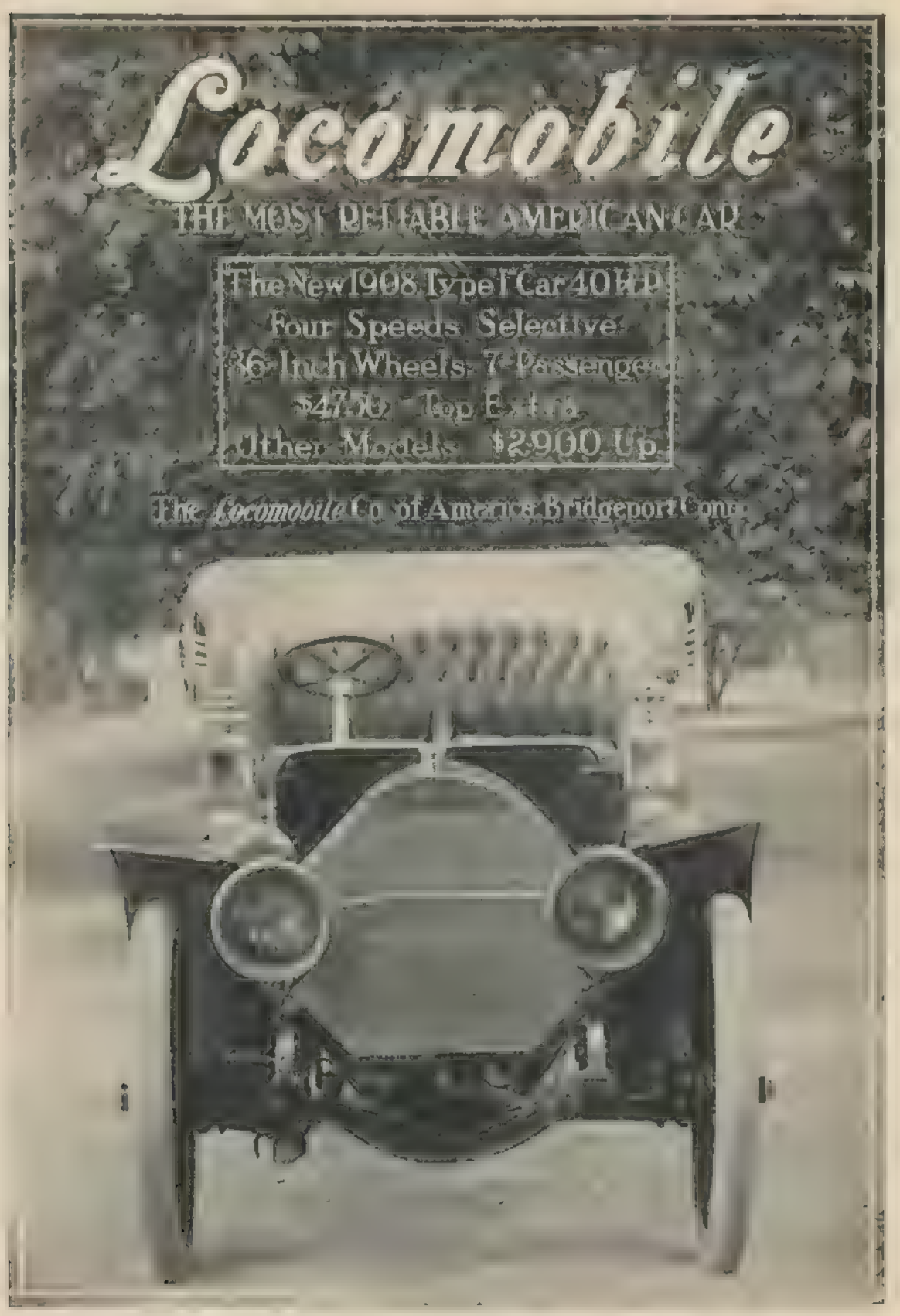

Locomobile
THE NEW "40" (60 H.P. MOTOR)
$4750 Without Top
The Locomobile Company of America, Bridgeport, Conn.
Branches


Locomobile
THE MOST RELIABLE AMERICAN CAR
The New 1908 Type I Car 40 H.P.
Four Speeds Selective
36 Inch Wheels 7 Passenger
$4700 Top Extra
Other Models $2900 Up
The Locomobile Co. of America Bridgeport Conn.

STEAMER ALLIANCE [illegible] COOS BAY, SAN FRANCISCO AND PORTLAND

"YOU" ARE WANTED

At NORTH BEND, on COOS BAY, OREGON. Opportunity is here awaiting the "Hour and the Man". Over one hundred billion feet of uncut timber and eight hundred million tons of coal await the ax and the pick.

North Bend--Its Payroll Talks

¶ NORTH BEND'S present site was a tract of timber in 1902—today there are 2200 people. ¶ $60,000 is the monthly payroll, conceded to be the largest in the United States for a city of this size. ¶ $700,000 were expended for building and improvements in the year 1906. ¶ Coos Bay is the next harbor for Trans-Pacific traffic on the Pacific Coast of the United States. ¶ Congress has ordered a survey of the Coos Bay Bar for the purpose of giving it the same depth as Golden Gate—40 feet. ¶ Puget Sound, Coos Bay and Golden Gate stand in a class alone as Pacific sea ports. ¶ Lumber mills, ship yards, machine shops, and quarries are here and generous inducements are held out for others. ¶ Come now and "Beat the Railroad."

LOVER'S LANE IN SIMPSON PARK

WRITE THE

North Bend Chamber of Commerce

NORTH BEND, COOS BAY, OREGON

An organization of the citizens for the upbuilding and development of the Coos Bay country.

OAKLAND

CALIFORNIA

OAKLAND has fifteen miles of **WATER FRONT**; is on the **LAND SIDE** of San Francisco Bay; is the **LAND TERMINAL TODAY** of **THREE TRANS-CONTINENTAL RAILROADS** and the geographical and logical terminal of **ALL PROSPECTIVE TRANS-CONTINENTAL ROADS**; has many established **FACTORIES** and **UNEXCELLED SITES** for many more; is backed by the **MOST FERTILE AGRICULTURAL SECTION** in the State.

Population over 237,000

Area $18\frac{8}{10}$ sq. miles

THE CLIMATE of **OAKLAND**, according to government figures is the most equable of any city in the State. ¶ **MOST PICTURESQUE RESIDENCE SITES** in all California. ¶ **BUILDING PERMITS** for the past nine months number **2561** amounting to **$4,562,403.91.** ¶ In round figures the **BANKS OF OAKLAND** show **DEPOSITS** of $40,000,000

These are but a few reasons why **OAKLAND** has become **THE RECORD CITY** of the **UNITED STATES** in rapid growth. There are many more.

Free illustrated pamphlets mailed upon request. Address

OAKLAND CHAMBER OF COMMERCE

12th and Franklin Streets **OAKLAND, CAL.**

OAKLAND

THE CITY OF OPPORTUNITY

POPULATION

Population of Oakland proper, April 15, 1905	110,000
Population of Oakland proper, April 15, 1908	240,000
Population of Contiguous Territory, April 15, 1908	160,000
Population of Greater Oakland, April 1, 1908	400,000

ASSESSED VALUATION

Assessed valuation of Oakland property, March 1, 1905	$ 64,000,000
Assessed valuation of Oakland property, March 1, 1907	$101,000,000

BANK DEPOSITS

Deposits in 11 Oakland Banks, April 15, 1906	$28,065,605
Deposits in 15 Oakland Banks, April 1, 1908	$42,000,000
Deposits in 30 Alameda County Banks, April 1, 1908	$55,000,000

BUILDING PERMITS

	Number	Value
For the fiscal year 1905-1906	3,105	$ 4,446,892
For the fiscal year 1906-1907	5,492	$ 9,821,331
From April 1, 1907, to April 1, 1908	4,236	$ 7,059,725
Oakland City permits in 2 years		$20,000,000
Greater Oakland permits in 2 years		$28,000,000

MANUFACTURED PRODUCTS

Products of Alameda County factories in 1905	$13,285,197
Products of Alameda County factories in 1906	$58,231,026
Products of Alameda County factories in 1907	$68,435,352

Ninety per cent of these industries lie within Oakland proper.

HARBOR AND SHIPPING FACILITIES

Increase in wharf accommodations for commerce in Oakland Harbor in 2 years, approximately	5,000 lineal feet
Wharfage in course of construction	9,000 lineal feet
Projected wharf accommodations sufficient for 300 ocean-going vessels	81,000 lineal feet

Three transcontinental railroads terminate in Oakland.

POSTOFFICE RECEIPTS

Postoffice receipts, 1905	$165,624 27
Postoffice receipts, 1906	$258,659.16
Postoffice receipts, 1907	$428,430.01

INTERURBAN TRANSPORTATION

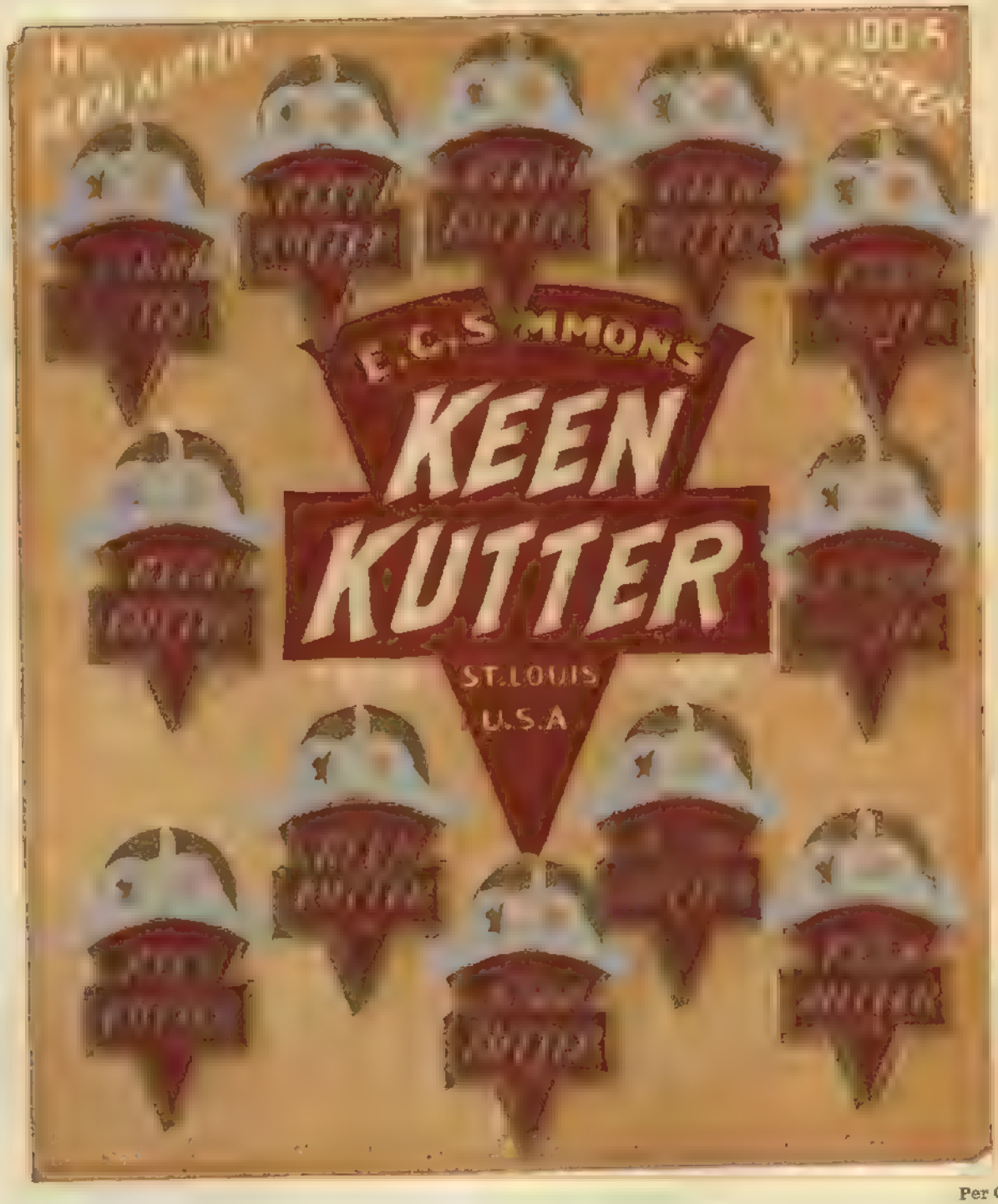
One hundred and ninety-five miles of electric urban and interurban railroads converge in Oakland's business center, making tributary to the latter a population of 415,000. Plans laid by the railroad corporations to spend about $30,000,000 in Oakland within the next five years.

List of Members of the OAKLAND REAL ESTATE ASSOCIATION

811-812 First National Bank Building, Oakland, Cal.

Austin, Geo. W.	1018 Broadway
Breed & Bancroft	203-6 Oak. Bank of Savings
Bryant & Dirge	1112 Broadway
Cameron, Hugh M.	1058 Broadway
Crossley, Nat. M.	1258 Broadway
Crown, Wm. M. Co.	1056 Broadway
Duby & Co., A. L.	1168 Broadway
Gray, Geo. B. M.	454 Ninth St.
Harris, W. T.	113 Telegraph Ave.
Havens, Wickham, Inc.	1212 Broadway
Hayden-Bright Co.	1234 Broadway
Holcomb Realty Co.	306 San Pablo
Landregan, T. C.	3854 San Pablo Ave.
Laymance Real Estate Co.	460-52 Eighth St.
Lloyd & Stein Co	458 Ninth St.
MacDonald & Co., J. H.	1052 Broadway
Minney & Co., M. T.	1259 Broadway
Montgomery, R. J.	40th & Telegraph
Mott Co., Frank K.	1060 Broadway
Nickel & Co., Karl H.	211 Oak. Bk. of Sav
Porter, F. F.	465 Eighth St.
Realty Bonds & Finance Co. and Hotle & Co., O. E., Cons.	1172 Broadway
Realty Syndicate, The	1218 Broadway
Sessions & Co., E. C.	128 Albany Block
Snyder Co., A. J.	901 Broadway
Stewart & Brown	950 Broadway
Taylor Bros	1236 Broadway
Tyrrel, J.	5 Telegraph Ave.
Will, F. A.	476 Tenth St.

PADLOCKS.



Per Card

No. 100A—ASSORTMENT; Consists of One Dozen *KEEN KUTTER* Padlocks Mounted on Heavy Cardboard Display Stand, 13x16 inches $10.00

(For General Description see Page 1107.)

The 1908 Victor Models

The Victor Automobile Mfg. Co., St. Louis, Mo., still impressed with the idea that the automobile that is destined to hold a permanent place in the economic life of the people of this country is not the elaborate, cumbersome and expensive type, which heretofore served only as a luxury for the rich, but a machine that will travel exactly the same roads, do exactly the same work and do it at the very minimum cost of running, has placed upon the market its 1908 line at a minimum price, varying from $575 to $750.

The various models have as a basis the same chassis, using a two-cylinder opposed, air-cooled motor, placed crosswise under the hood on the front, and a friction change speed gear with side chains to the rear wheels.

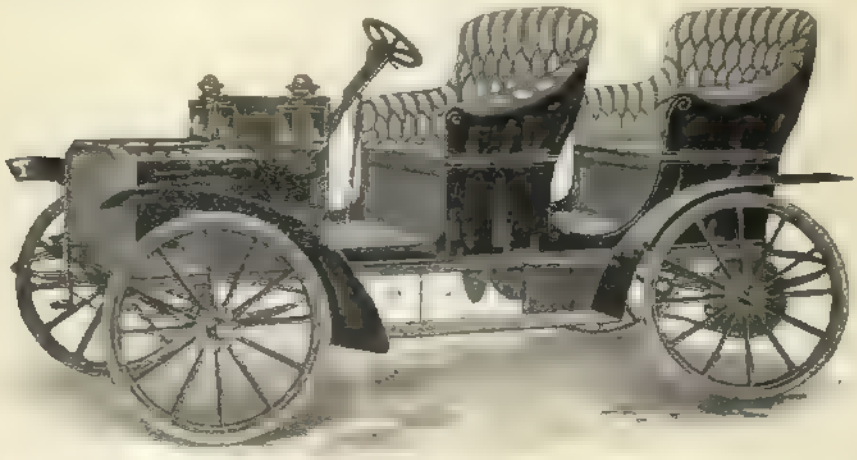


Fig. 1. The [illegible] Victor Model [illegible] with top 28 inch wheels, with pneumatic tires. Motor 2-cylinders [illegible] position. Friction drive and side chains to rear wheels. Wheel base [illegible] inches and 16% when fitted with large 36 inch wheels and solid tires. Price, $[illegible]50 without top.

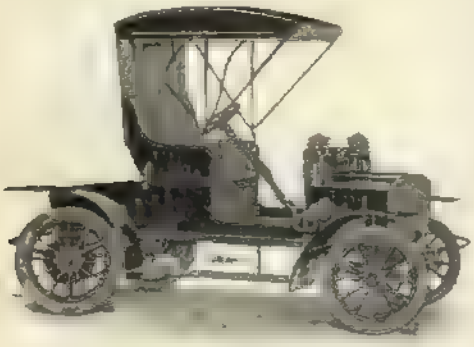


Fig. 2. 1908 Victor Model "F." Same chassis specifications as Model "D," except the wheel base is 94 inches. Price $700 fitted with pneumatic tires.

The models are "C," a runabout with solid tires, $575; "D," a runabout with pneumatic tires; "F," a surrey, $700; when fitted with pneumatic tires this model can also be had with a cape top, and the Victor Pullman, with one seat and closed body, equipped with sides and doors for winter use, $750. These sides and doors are removable, leaving a light top and protective front. A small delivery car, Model H, is also arranged on the same chassis, price $650. This rig is suitable for light delivery and for collection of mail.

The machines are said to be able to make 30 miles an hour and negotiate easily sandy or hilly country. The wheel base of the single-seated cars is 84 inches, and of the two-seated cars and delivery wagon 94 inches.

THE POWER PLANT

The motor is two cylinders, opposed, with valve in the head, all mechanically operated. The cylinders are of high grade air-furnace iron, with flanges of extreme depth to insure perfect cooling. All ports are bored and ground to size. The pistons and rings are of the same material and ground to gauge. The crank shaft is machined from a solid billet of low carbon steel, case hardened and ground. The camshafts and push rods are of machine steel, also case hardened, and all run in oil. The connecting rods are of phosphor bronze, with Parsons white bronze bearings. The valve cages are easily removable for inspecting and grinding the valves. The carburetor is of the usual float-feed automatic type.

Ignition is by jump spark from two sets of dry cells. Oiling is by force feed with sight feeds on the dash.

The engine is placed crosswise under the hood at the front, so there is a free circulation of air around the cylinders, and in addition the large fly-wheel which is in front is cast with integral fan blades. This motor, it is claimed, has been thoroly tested on the road and has been run suc-

cessfully for eight hours continuously under full load in a stationary position, as a test of its cooling ability.

THE FRICTION CHANGE SPEED GEAR

The oblique view of the chassis, Fig. 3, shows the general arrangement of the power plant and friction change speed.

The motor is set slightly on an angle, so its prolonged crank-shaft extends backward and slightly downward, and carries at the end a plate faced with aluminum against which the fibre-edged transversely movable friction wheel operates. This wheel, as usual, is splined or feathered to the jack-shaft, which has a differential at one side and drives to the rear wheels by side chains. These chains are 1 in. x ½ in Diamond, with 9-16 in. rollers, and are tested to 5000 pounds. This arrangement, of course, provides all speeds forward and reverse, and is easily operated by a single side lever and one pedal. The usual spark and throttle control levers are under the steering wheel.

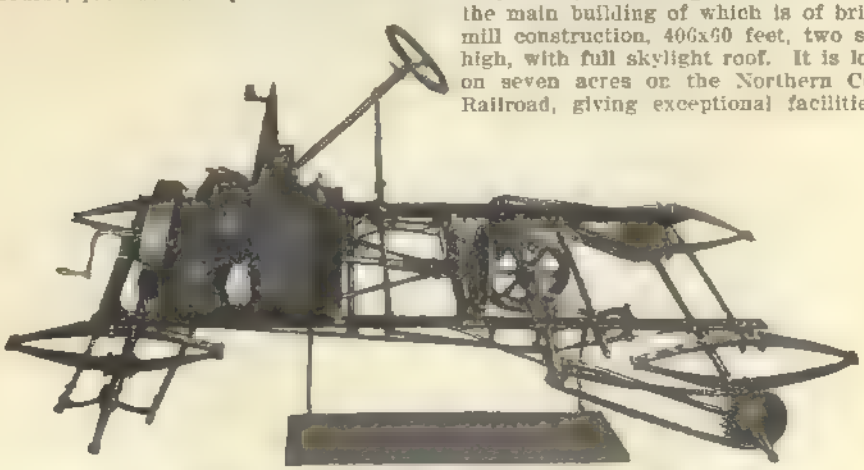


Fig. 3. Chassis of Victor "Hand Forged Automobiles" showing 2-cylinder opposed motor under the hood at the front, arrangement of friction driving wheel and disk chains to rear wheels and full elliptic springs all around.

The internal expanding brake of the Victor is self contained, and always concentric with the brake-drum, so that when the brake is set it clutches with equal force the entire circumference of the drum, and when released does not drag

For 1908 both front and rear axles are I-section, giving a light, rigid construction. The wheels are 36 inches in diameter, of artillery type, fitted with 1¼-inch solid rubber tires, giving the machine 16¾ inches clearance. Low wheels, fitted with 28-inch pneumatic tires, can also be had, the rig having a clearance of 11¾ inches when thus fitted. The width of tread is either 56 or 61 inches, as ordered. The frame is of angle steel, all one piece except the cross members at the middle which are also angle steel, hot riveted.

Full elliptic springs perched on top of the axles are used both front and rear.

A gasoline tank of seven gallons capacity is supplied, feed being by gravity. The car complete weighs about 900 lbs. when fitted with two seats. The bodies are finished in colors to suit. The seats are 36 inches wide, expanding to 42 inches at the top, and are generously upholstered in leather. A large carrying space is provided in the runabout body at the rear.

The prices are f. o. b. St. Louis and include two brass oil lamps, horn and tools Brooks' Automobile Handbook is also given each purchaser in addition to the regular card of instructions. Tops and searchlights are extra

Mora Company's New Plant

The Mora Motor Car Company, Newark, N. Y., is moving into its new plant, the main building of which is of brick, of mill construction, 406x60 feet, two stories high, with full skylight roof. It is located on seven acres on the Northern Central Railroad, giving exceptional facilities for shipping. A special siding has been graded down so the floors of the cars will be on a level with the factory floor. A testing house, with doors the entire length, with pits back of each, the pits being fitted with automatic ventilators, is a feature

An isolated building of concrete block for the heating plant is built at the far end of the building next to the railroad, which allows of coal being dumped from the car to the fire-room. The blacksmith shop is just beyond the boiler house, isolating such work from the main building.

Plans are made for other buildings to be located parallel with the first main building, and when completed the several buildings are to be connected by a building across the south end.

The Contest Committee of the Quaker City Motor Club has declared the Pullman car winner of the Philadelphia to Savannah race between it and a Studebaker, the latter being disqualified for not adhering to the regulations previously agreed to.

SHAVING BRUSHES.

No. 60

No. 125

		Per dozen
No. 60.	**Pure Bristles**, Large Fancy Enameled Handles	$1 20
No. 125.	**Pure Bristles**, Ebenoid Handles, Nickel Finish	2 50

Half dozen in a box

No. 90

No. 150

		Per dozen
No. 90.	**Pure French Bristles**, Wire Bound, Fancy Black Handles	$1.80
No. 150.	**Long Selected French Bristles**, Wire Bound, Enameled Handles	3.00

Half dozen in a box.

Nos. 1A, 2A and 3A.

No. 2.

		Per dozen
No. 1A.	**Small**, Long Selected French Bristles, Aluminum Antiseptic Ferrule	$4.00
No. 2A.	**Medium** Long Selected French Bristles, Aluminum Antiseptic Ferrule	5.00
No. 3A.	**Large**, Long Selected French Bristles, Aluminum Antiseptic Ferrule	6.00
No. 2.	**Sta-Fast**, Extra Long Selected German Bristles, Long Britannia Ferrule, Short Ebenoid Handles, will not twist, the brush can not split or shed its hair, a good article for barbers' use	4.00

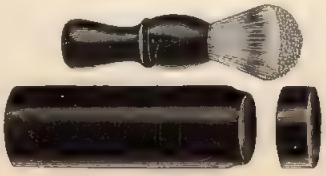
Half dozen in a box.

No. KKO.

No. 600

		Per dozen
No. KKO.	**Long Selected Bristles**, Britannia Ferrule, Short Ebenoid Handles, will not twist, split or shed its hair	$ 4.00
No. 600.	**Soft Badger Stock**, Ebenoid Handles, the hair is fastened in the handle by a patent security cap, brush can not split or shed hair	12 00

Half dozen in a box.



		Per dozen
Gem.	**Travelers' Friend**, Brush and Case Complete, Metal Cap, Soft Badger Hair Brushes	$5.00

Half dozen in a box

SHAVING BRUSHES.

ASSORTMENTS.

King.

Electro.

Per asst.

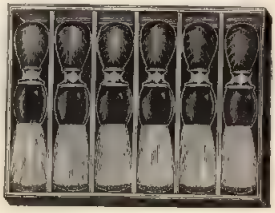
King Assortment, Contains One Dozen Brushes, Assorted Cord Bound, Wire Bound and Enameled Handles, All Pure Bristles $1 50

Electro Assortment, Contains One Dozen Brushes, Assorted Fancy Handles, Bone and Wood, Nickel and Wood and Imitation Ebony, Assorted Bristle and Badger Mixed Brushes 3 00

Caldwell

Per asst.

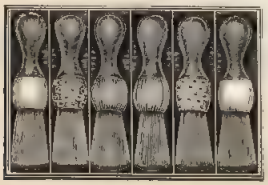
Caldwell Assortment, Contains One Dozen Brushes Assorted Fancy All Bone, Bone and Wood, Nickel and Wood, and Imitation Horn Handles, Assorted Bristle and Badger Brushes $4.00



No. 1905.

Per dozen

1905 Assortment, Contains Half Dozen Brushes, Assorted Fancy Hard Wood Handles, Nickel Finished, Pure Bristle Brushes $4.00



No. 1507.

Capitol.

Per dozen

No. 1507. Assortment, Contains Half Dozen Brushes, Assorted Fancy Carved Bone and Boxwood Handles, Three Bristle and Three Badger Brushes $6.00

Capitol Assortment, Contains Half Dozen Brushes, Assorted All Fancy Carved Horn and Bone Handles, Selected Pure Bristles 7.00

CARRIAGE LAMPS.

BOMBAY.

AKIL.

BOYD.

							Per pair
No. 2.	Bombay,	Body 3¼x3¼ in.,	Height 3¾ in.,	Length 11⅞ in.,	French Swelled Glasses		$2.00
No. 3.	Akil,	Body 3½x3½ in.,	Height 4 in.,	Length 12 in.,	French Swelled Glasses		2.30
No. 5.	Akil,	Body 3¾x3¾ in.,	Height 4¾ in.,	Length 13½ in.,	French Swelled Glasses		2.80
No. 6.	Akil,	Body 4¼x4¼ in.,	Height 5 in.,	Length 14 in.,	French Swelled Glasses		2.90
No. 3.	Boyd,	Body 4¼x3¼ in.,	Height 3¼ in.,	Length 11 in.			2.60
No. 5.	Boyd,	Body 4¾x3¾ in.,	Height 3¾ in.,	Length 12 in.			2.95
No. 5½.	Boyd,	Body 5¼x4 in.,	Height 4½ in.,	Length 13 in.			3.40

BLAGDON.

BRETON.

ALBEXTO.

							Per pair
No. 5.	Blagdon,	Body 3¾x3¾ in.,	Height 4¾ in.,	Length 14 in.			$2.90
No. 5.	Breton,	Body 4¾x3¾ in.,	Height 3¾ in.,	Length 13½ in.			3.15
No. 5½.	Breton,	Body 5¼x4 in.,	Height 4½ in.,	Length 14½ in.			3.40
No. 5.	Albexto,	Body 4¾x3¾ in.,	Height 3¾ in.,	Length 12¾ in.			3.60
No. 5½.	Albexto,	Body 5¼x4 in.,	Height 4½ in.,	Length 13½ in.			3.90

CARRIAGE LAMPS.

BRAZIL.

BARTON.

BRADLEY.

			Per pair
No. 4.	Brazil,	Body 3¾x3¾ in., Height 4¼ in., Length 13¼ in.	$4.15
No. 5.	Barton,	Body 4¾x3¾ in., Height 3¾ in., Length 12¼ in.	4.30
No. 5½.	Barton,	Body 5¼x4 in., Height 4⅛ in., Length 13¼ in.	4.80
No. 6.	Bradley,	Body 4¼x4 in., Height 4¾ in., Length 13 in.	6.50

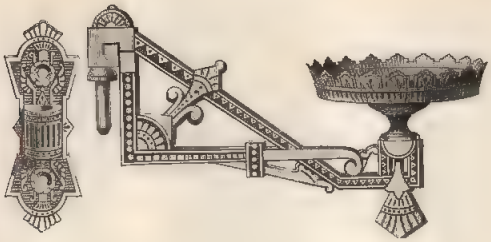
IVY.

NEW YORK MAIL.

CROMWELL.

		Per pair
No. 6.	New York Mail, Flange 6½ in. diameter, side Glasses 5x3⅝ in., Swelled Glass Front of Flange, Oval Head, Red Jewel in Door	$12.75
No. 6.	Ivy, Body Height 5¾ in., Diameter 6 in., Length 15¾ in., Full Silver Stem, Four Swelled Bent Glasses 6x3¼ in.	10.80
No. 7.	Ivy, Body Height 6 in., Diameter 6¼ in., Length 16¾ in., Full Silver Stem, Four Swelled Bent Glasses 6x3½ in.	15.00
No. 6½.	Cromwell, Body 6 x5 in., Length 19 in.	12.80
No. 7½.	Cromwell, Body 6½x5½ in., Length 20 in	13.40
No. 8½.	Cromwell, Body 7 x6 in., Length 21 in.	14.25
No. 9½.	Cromwell, Body 7½x6¼ in., Length 22½ in.	16.50
No. 10½.	Cromwell, Body 8 x7¼ in., Length 24 in	20.50

FLOWER POT BRACKETS.

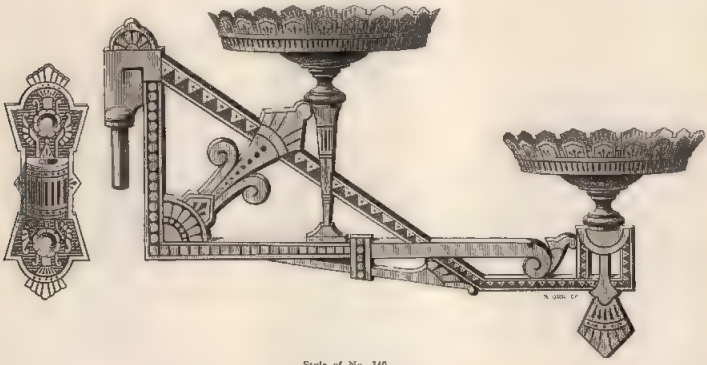


Style of No. 310.

Per dozen

No. 310. Berlin Bronzed, Length of Arm 6 in., Diameter of Dish 5 in. $3.00

One-third dozen in a box, with screws.

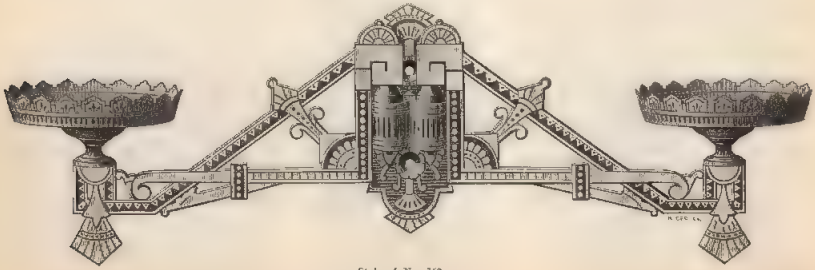


Style of No. 340.

Per dozen

No. 340. Berlin Bronzed, Length of Arm 12 in., Diameter of Dishes, One 5 and One 6 in. $5.75

One-third dozen in a box, with screws.



Style of No. 360.

Per dozen

No. 360. Berlin Bronzed, Length of Arms 8 in., Diameter of Dishes 6 in. $6.25

One-third dozen in a box, with screws

BECAUSE of its superiority, the **COES** is widely copied. While imitation may be the sincerest flattery, you don't want to put up with the annoyance of an inferior wrench because the dealer assures you it is "just as good as the **COES**." Insist upon the genuine. They all bear the Star trade mark, and are fully guaranteed *Write for the Wrench Book.*

Coes Wrench Company

WORCESTER, MASSACHUSETTS

New York Agents

J. C. McCARTY & CO., 21 Murray Street, New York City
J. H. GRAHAM & CO., 114 Chambers Street, New York City

COES WRENCHES are reliable because they are carefully constructed. They are inspected **sixteen** times in the course of their manufacture, eleven before and five after assembling, so that it is impossible for the slightest imperfection to creep in. This care, coupled with the use of the highest quality of steel castings, hardened by our special process, has made the **COES** second to none.

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Coes Wrench Company

WORCESTER, MASSACHUSETTS

New York Agents

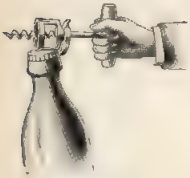
J. C. McCARTY & CO., 21 Murray Street, New York City
J. H. GRAHAM & CO., 114 Chambers Street, New York City

CORKSCREWS.

Drawing a Cork.

Full Size Cut.

Lifting a Seal.



Removing a Crown.

Breaking a Wire.

Williamson's Combined Cork Extractor, Crown Opener, Seal Lifter and Wire Breaker. Tempered Norway Steel Screw, Flat Bottom Cup prevents chipping, flaking or breaking the bottles, also loose on the screw, adjusts itself on the top of the bottle, thus making a direct pull.

Per dozen

No. 8082. Nickeled Screw and Cup, Maple Handles $4.50

Half dozen on a card.

No. 600, Half Size Cut.

No. 1042½, Half Size Cut.

No. 11, Half Size Cut.

Per dozen

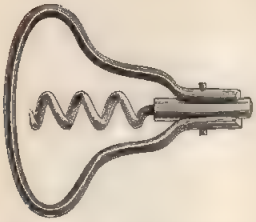
No. 600. **Power**, Hardened, Tempered and Nickel Plated, Polished Ash Handle $4.00

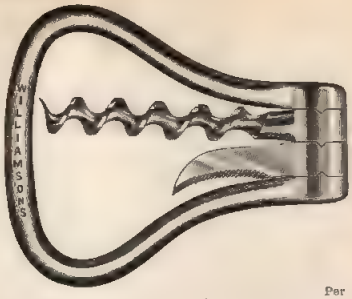
No. 1042½. **Power**, Crucible Steel, Tempered, Nickel Plated, 7 in. Genuine Stag Handle 9.00

No. 11. **Crucible Steel**, Tempered, Nickel Plated, 4½ in. Genuine Stag Handle 9.00

No. 600, one dozen; Nos 1042½ and 11, one-twelfth dozen in a box

CORKSCREWS.



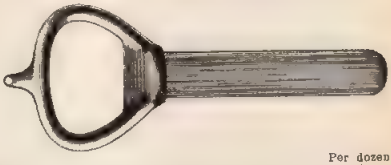


Per dozen

No. 120. Nickel Plated, Hardened and Tempered $1 20
One dozen in a box.

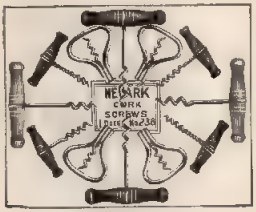
Per dozen

No. 1067. Nickel Plated, Crucible Steel Screw $6.00
Half dozen on a card

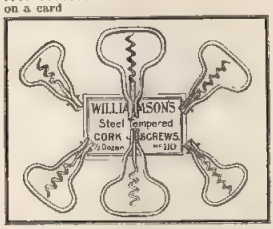


Per dozen

No. 4. Polished Steel, Crown Opener, Seal Lifter and Corkscrew $3.00
With wooden tubes, one dozen on a card



No 238

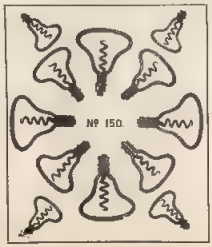


No. 110.

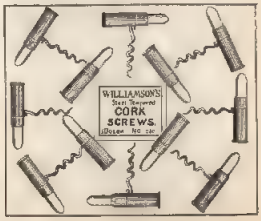
Per card

No. 238. Assortment, Consists of One Dozen Corkscrews, all with Coiled Screws $1 20
No. 110. Assortment, Consists of Half Dozen Corkscrews, with Three Forged and Three Coiled Screws 1 20
Each assortment on a card.

No. 12.



No. 150.



No. 080.

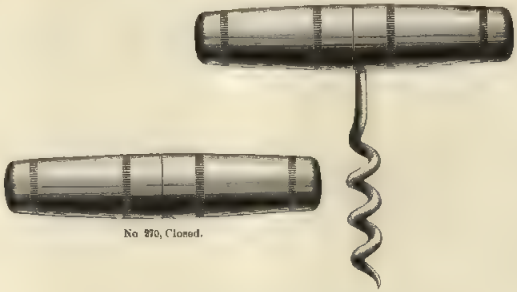
Per card

No. 12. Assortment, Consists of One Dozen Corkscrews, Assorted Wood and Metal Handles $1 50
No. 150. Assortment, Consists of One Dozen Corkscrews, all with Coiled Screws 2.50
No. 080. Assortment, Consists of One Dozen Corkscrews, all with Coiled Screws 4.50
Each assortment on a card.

CORK SCREWS.

With Round Wire Handle.

No. **76**, Nickeled Screw and Handle, Per dozen, $1 20



No 270, Closed.

IMPROVED ENGLISH BARREL SCREW.

With Brass Handle, Nickel Plated.

No. **270**, Nickel Plated Screw and Handle, Per dozen, $2 25

One dozen on a card.

COMBINATION CORK SCREW.

Crown and Seal Opener, for the Pocket.

Metal Tube.

No. **4½**, Nickel Screw and Handle, - Per dozen, $1 20

Two dozen on a card.

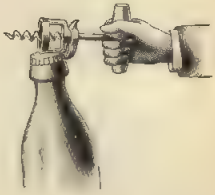
MORLEY-MURPHY HARDWARE COMPANY, GREEN BAY, WIS.

MORLEY-MURPHY HARDWARE COMPANY, GREEN BAY, WIS.

CORK SCREWS.

No. 8082.

Extracting the Cork



Removing the Crown.

Lifting the Seal.

Breaking the Wire.

COMBINED CORK EXTRACTORS, CROWN OPENERS, SEAL LIFTERS AND WIRE BREAKERS.

No. **8082**, Norway Steel, Nickeled Screw, Nickeled Cup, Maple Handle, - - Per dozen, $4 00
One dozen on a card

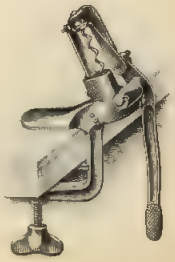
THE YANKEE CORK PULLER.

No. 1.

Absolutely without effort draws all corks. Attached anywhere—sideboard, icebox, door frame or wall. Corks, if desired, may be drawn only part way, to be removed later by the fingers.

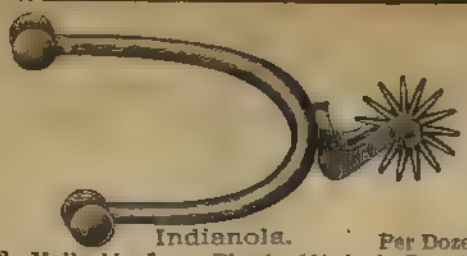
No. **1**, "Yankee" is beautifully Finished and is indestructible, Nickel Plated, - - - Each, $1 25

" **2**, "Yankee" is made to clamp to counter for use of Hotels, Clubs, Restaurants, etc., Nickel Plated, " 2 00



No. 2.

SPURS.



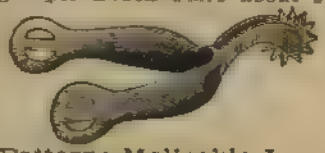
Indianola.

Per Dozen Pairs

No. 12—Malleable Iron, Blued; 1⅛ inch Rowel; 1⅛ inch Turned up Shank; With Two Spur Strap Buttons $2.20

No. 12/S—WITH No. 12 INDIANOLA SPUR STRAP; Otherwise same as No. 12 ..... 6.50

Weight per Dozen Pairs about 5 lbs.



English Pattern; Malleable Iron, Tinned.

Per Dozen Pairs

No. 5T—¾ inch Blued Steel Rowel; 1¼ inch Turned up Shank; 7/16 inch Spur Strap Loops $2.75

No. 5/S—WITH COMMON SPUR STRAPS; Otherwise same as No. 5T 4.25

Weight per Dozen Pairs about 4½ lbs.

One Dozen Pairs in a Cardboard Box.

English; Steel, Nickel Plated.

Per Dozen Pairs

No. 99—¾ inch Blued Steel Rowel, Set Horizontally 1 inch Straight Shank; ⅝ inch Spur Strap Loops $4.50

No. 99 S—WITH COMMON SPUR STRAPS; Otherwise same as No. 99 ..... 6.00

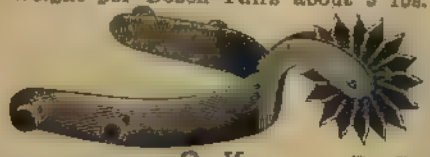
Solid Brass, Polished

Per Dozen Pairs

No. 03B—⅞ inch Blued Steel Rowel, 1 inch Turned up Shank; ½ inch Spur Strap Loops $7.00

No. 03BS—WITH COMMON SPUR STRAPS; Otherwise same as No. 3B 8.50

Weight per Dozen Pairs about 3 lbs.



O. K.

Per Dozen Pairs

No. 85½B—Malleable Iron, Blued; 1⅞ inch Steel Rowel; 1⅞ inch Turned up Shank With Four Spur Strap Buttons $10.00

No. 85½BS—WITH O. K. SPUR STRAPS; Otherwise same as No. 85½B 14.00

Weight per Dozen Pairs about 9 lbs

English; Malleable Iron, Tinned.

Per Dozen Pairs

No. 2006—⅝ inch Blued Steel Rowel; 1 inch Slightly Curved Shank; ½ inch Spur Strap Loops $2.75

No. 2006/S—WITH COMMON SPUR STRAPS. Otherwise same as No. 2006 ..... 4.25

Weight per Dozen Pairs about 3½ lbs.

English; Malleable Iron, Nickel Plated

Per Dozen Pairs

No. 100—⅝ inch Blued Steel Rowel; 1¼ inch Turned up Shank; ½ inch Spur Strap Loops $3.50

No. 100/S—WITH COMMON SPUR STRAPS; Otherwise same as No. 100 ..... 5.00

Weight per Dozen Pairs about 3½ lbs.

Eureka.

Per Dozen Pairs

No. 3—Steel, Nickel Plated; 1⅜ inch Rowel; 1 inch Shank; With Four Spur Strap Buttons. $5.00

No. 3/S—WITH EUREKA SPUR STRAPS; Otherwise same as No. 3 ..... 8.70

Weight per Dozen Pairs about 5 lbs.

O. K.

Per Dozen Pairs

No. 85B—Malleable Iron, Blued; 1½ inch Steel Rowel; 1½ inch Turned up Shank, With Four Spur Strap Buttons $7.80

No. 85BS—WITH O. K. SPUR STRAPS; Otherwise same as No. 85B 11.50

Weight per Dozen Pairs about 5 lbs.

Texas.

Per Dozen Pairs

No. 89P—Malleable Iron, Polished; 1½ inch O. K. Blued Steel Rowel; 1¾ inch Curved Shank; With Four Spur Strap Buttons $11.00

No. 89PS—WITH EUREKA SPUR STRAPS; Otherwise same as No. 89P 14.50

Weight per Dozen Pairs about 9 lbs.

One-half Dozen Pairs in a Cardboard Box.

FOR SPUR STRAPS SEE PAGE 1990.

SPURS.

Mexican.

Per Dozen Pairs

No. 1254—Malleable, Filed and Chased; 1½ inch Blued Malleable Rowel, With Two Rowel Dogs or Bucks, 1½ inch Curved Shank, Plain Single Heel Chain, and Two Spur Strap Buttons $5.30

No. 1254/S—WITH No. 1M SPUR STRAPS, Otherwise same as No. 1254 ..... 8.30

Weight per Dozen Pairs about 6 lbs.

California.

Per Dozen Pairs

No. 1263—Malleable Iron, Burnished; 1⅝ inch Blued Malleable Rowel; 1⅞ inch Drop Shank; With Plain Double Heel Chains on Cinch Hooks, and Two Spur Strap Buttons..$17.00

No. 1263/S—WITH No. 3M SPUR STRAPS; Otherwise same as No. 1263 .....$21.00

Weight per Dozen Pairs about 13 lbs.

Per Dozen Pairs

No. 1176½—Steel, Polished; 1⅛ inch Blued Steel Rowel; 2¾ inch Curved Shank; With Four Spur Strap Buttons $9.30

No. 1176½/S—WITH O. K. SPUR STRAP; Otherwise same as No. 1176½..... 12.80

Per Dozen Pairs

Underwood's Patent.

No. 1276½—Steel, Polished; 1⅛ inch Blued Steel Rowel, 2¾ inch Curved Shank; With Two Patent Spur Strap Buttons.....$18.00

No. 1276½/S—WITH No. 12 INDIANOLA SPUR STRAP, Otherwise same as No. 1276½ 22.00

Weight per Dozen Pairs about 7 lbs.

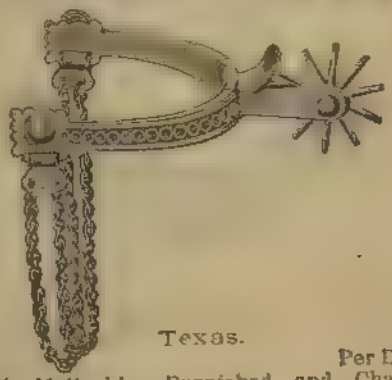
Mexican.

Per Dozen Pairs

No. 1270—Malleable Iron, Burnished and Engraved; 1⅞ inch Blued Malleable Rowel, 1¾ inch Drop Shank, With Double Heel Chains on Cinch Hooks and Two Spur Strap Buttons $17.00

No. 1270/S—WITH No. 1M SPUR STRAPS, Otherwise same as No. 1270 ..... 20.00

Weight per Dozen Pairs about 13 lbs.



Texas.

Per Dozen Pairs

No. 1271½—Malleable, Burnished and Chased; 1⅝ inch Blued Malleable Rowel; 1¾ inch Straight Shank; With Plain Double Heel Chains on Cinch Hooks, and Two Spur Strap Buttons $18.00

No. 1271½/S—WITH No. 3M SPUR STRAPS, Otherwise same as No. 1271½ $23.00

Weight per Dozen Pairs about 10 lbs.

Underwood's Patent. Per Dozen Pairs

No. 95—Steel, Burnished and Chased; 1⅝ inch Blued Malleable Rowel; 1¾ inch Straight Shank; With Two Spur Strap Buttons ...$17.40

No. 95/S—WITH No. 12 INDIANOLA SPUR STRAPS; Otherwise same as No. 95..... 21.50

Per Dozen Pairs

Underwood's Patent.

No. 94P—Steel, Polished, 1⅛ inch Blued Steel Rowel; 1¾ inch Curved Shank, With Two Patent Spur Strap Buttons $18.50

No. 94PS—WITH No. 12 INDIANOLA SPUR STRAPS; Otherwise same as No. 94P.. 22.50

Weight per Dozen Pairs about 9 lbs.

One-half Dozen Pairs in a Cardboard Box.

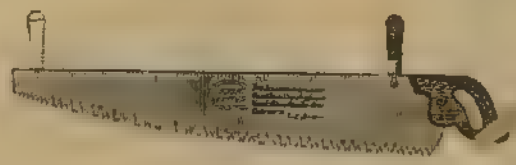
FOR SPUR STRAPS SEE PAGE 1990

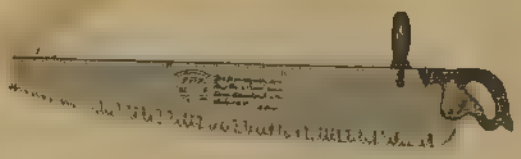
TRADE MARKS
B C SIMMONS' *KEEN KUTTER*, CHIPAWAY
REGISTERED

ONE MAN CROSS CUT SAWS.

With Supplementary Handle.

KEEN KUTTER **Cross Cut Saws are made by the World's Best Saw Makers who put into them the Very Best Material and Workmanship.**





*KEEN KUTTER**.

Highest GRADE CRUCIBLE STEEL, EXTRA POLISHED AND ETCHED. Thin Back, Carefully Ground; Teeth Extra Filed and Set ready for use. Regular or Butt Handle. Selected Beechwood Plain Sides, with Varnished Edges. Supplementary Handle Varnished Beechwood. Polished Ferrule.

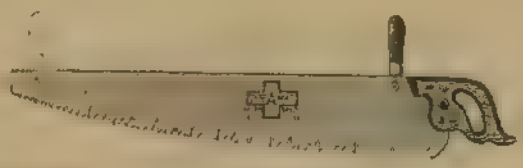
No. K300—*KEEN KUTTER; Champion Tooth.**

Length, feet	2½	3	3½	4	4½	5
Weight each net about, lbs.	2½	3	4	5	6	7
Each	$2.00	2.10	2.45	2.80	3.15	3.50

No. K301—*KEEN KUTTER; Lance Tooth; Perforated.**

Length, feet	3	3½	4	4½	5
Weight each net about, lbs.	4	4½	5	6	6½
Each	$2.55	3.00	3.40	3.85	4.25

Three in a Paper Package; Thirty-six in a Wood Box.



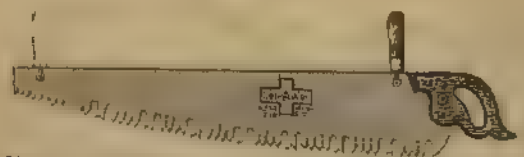
First Class Saws Built for Satisfactory Service.

CHIPAWAY*.

SPECIAL CRUCIBLE STEEL, POLISHED AND ETCHED. Carefully Ground; Teeth Filed and Set, Regular or Butt Handle, Selected Beechwood, Plain Sides with Varnished Edges, Supplementary Handle Varnished Beechwood; Polished Ferrule.

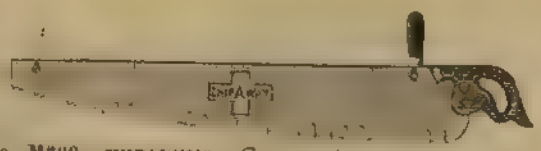
No. M303—CHIPAWAY*; Champion Tooth.

Length feet	2½	3	3½	4	4½	5
Weight each net about, lbs	2½	3	3½	4	[illegible]	6
Each	$1.75	1.95	2.28	2.60	2.93	3.25



No. M310—CHIPAWAY*, Lance Tooth, Perforated

Length, feet	3	3½	4	4½	5
Wgt. each net about, lbs.	4	4½	5	6	6½
Each	$2.40	2.85	3.25	3.70	4.10



No. M309—CHIPAWAY*, Great American Tooth.

Length, feet	3	3½	4	4½	5
Wgt each net about, lbs	3¾	4	5	5½	6¼
Each	$2.40	2.85	3.25	3.70	4.10

Thirty-six in a Wood Box.

ONE MAN CROSS CUT SAWS.

DISSTON'S.

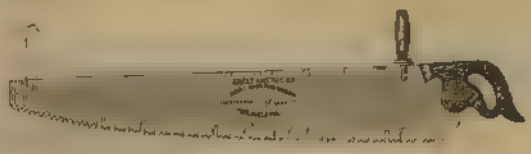
High Grade Crucible Steel, Polished and Etched. Teeth Filed and Set ready for use. Regular (or Butt) Handle. Selected Beechwood, Plain Sides, with Varnished Edges. Supplementary Handle, Varnished Beechwood, Polished Ferrule.

No. D301—DISSTON'S, Champion Tooth.

Length, feet	3	3½	4	4½	5
Wgt. each net about, lbs.	3½	4	5	6	7
Each	$2.25	2.60	3.00	3.35	3.70

No. D305—DISSTON'S, Great American Tooth, Skew Back.

Length, feet	3	3½	4	4½	5
Wgt. each net about, lbs.	3½	4	5	6	7
Each	$2.64	3.08	3.52	3.96	4.40



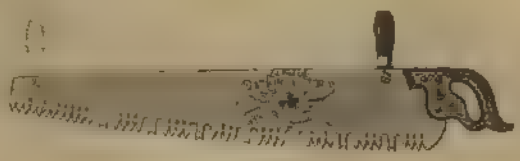
DISSTON'S.

High Grade Crucible Steel, Polished and Etched. Teeth Filed and Set Ready for use. Regular (or Butt) Handle. Selected Beechwood, Plain Sides, with Varnished Edges. Supplementary Handle, Varnished Beechwood, Polished Ferrule.

No. D302—DISSTON'S, Great American Tooth, Plain Back.

Length, feet	2½	3	3½	4	4½	5
Weight each net about, lbs.	3	3½	4	5	6	7
Each	$2.[illegible]	2.50	2.75	3.25	3.65	4.10

About Fifty in a Wood Box.



No. A308.

ATKINS'.

High Grade Crucible Steel, Polished and Etched. Teeth Filed and Set ready for use. Regular (or Butt) Handle. Selected Beechwood, Plain Sides, with Varnished Edges; Supplementary Handle, Varnished Beechwood, Polished Ferrule.

No. A306—ATKINS', Tuttle Tooth.

Length, feet	3	3½	4	4½	5
Wgt. each net about, lbs.	3½	4	5	6	7
Each	$1.80	2.10	2.40	2.70	3.00

No. A308—ATKINS', Lance Tooth, Perforated.

Length, feet	3	3½	4	4½	5
Wgt. each net about, lbs.	3½	4	5	6	7
Each	$1.92	2.24	2.56	2.88	3.20

Twenty-five in a Wood Box.

LADDERS.

Showing Truss Bolt supporting Step.

Extension.

Made in Two Sections; Norway Pine, Yellow Stained Sides 1⅞x2¾ inches; Hickory Rungs 1⅛ inches in Diameter, Mortised and Nailed; Japanned Wrought Iron Safety Cross Bars; Self-Acting Gravity Malleable Iron Hooks by means of which the Ladder can be Adjusted without Difficulty

	Each
20 Foot; Length Extended 17½ feet; Weight each about 40 lbs	$7.50
22 Foot, Length Extended 19½ feet; Weight each about 45 lbs	8.00
24 Foot, Length Extended 21½ feet; Weight each about 55 lbs	8.50
26 Foot, Length Extended 23½ feet; Weight each about 65 lbs	9.25
30 Foot; Length Extended 27½ feet, Weight each about 68 lbs	10.50
34 Foot; Length Extended 31½ feet; Weight each about 75 lbs	12.00
38 Foot; Length Extended 35½ feet, Weight each about 100 lbs	15.00

Packed Loose.

Ledge.

Norway Pine Yellow Stained, Top Step 7x15 inches, Supported Entire Width by Strong Wooden Brackets connected by Wooden Strip forming Brace to Rest on or against Ledge. Steps Mortised, 3¼ inches Wide, Supported by Truss Bolts and Two Additional Iron Braces from Bottom Step to Sides, Sides 2½ inches Wide

	Each
No. 4—4 foot; Weight each about 10 lbs	$2.50

Packed Loose.

Showing Steps Open.

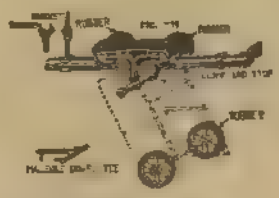
Pantry Step.

Folding; One Japanned Steel Rod Brace, Three Wood Braces; Wood Brace under each Step. Top Step 14x7 inches; Step 1½x4¾ inches, Height, Open, over all, 30 inches.

	Each
No. 11—PLAIN White Wood.	$2.25
No. 12—ASH, Varnished	3.00

Packed Loose; Weight each about 8 lbs.

‡SHELF LADDERS.



DESCRIPTION.

Ladder is 12 inches Wide; Steps 5 inches Wide; Height between Steps 11 inches; Open Panel Sides 5 inches Wide. Track is Double Angle Steel Rail 2½ inches Wide; Trolley is provided with 3 inch Anti-Rattler Wheels, with Rubber Tires.

‡MYERS' TROLLEY ROLLING SHELF LADDERS.

	Each
‡**No. 15**—*Myers' Georgia Pine Ladders, with Malleable Iron Fixtures: Complete with Trolley and Rubber Tired Floor Wheels.*	$18.00
	Per Foot
‡**No. 16**—*Myers' Steel Track 2½ inches Wide: Complete with Hanging Hooks; Diameter ½ inch*	$0.30

INSTRUCTIONS.

In ordering give following Measurements: Entire Length of Track required; Height of Ceiling from Floor.

Crated in any Quantity; Average Weight per Ladder about 50 lbs.

‡Goods marked thus (‡) are not carried in stock and can only be furnished by shipment direct from factory.

‡ROLLING SHELF LADDERS.

No. 1

No. 6.

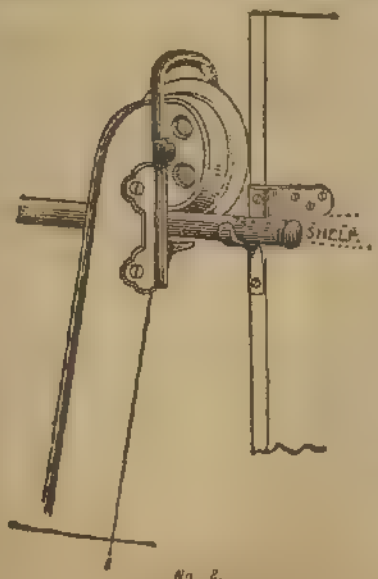
No. 15M.

‡Milbradt's, Varnished Oak, Width 17 inches, Width of Steps 3¼ inches. Height between Steps 15½ inches, with Nickel Plated Malleable Iron Castings. 5 inch Noiseless, Paper Filled Wheels.

	Each		Each		Each
‡No. 1—BENT LADDERS.	$14.00	‡No. 6—STRAIGHT LADDERS	$13.00	‡No. 15M TROLLEY LADDERS	$10.00

LADDER TRACK.

	Per Foot
‡No. 6—Steel Tubing, 1 inch in Diameter, Complete with Brackets and Screws: Brackets should not be more than 4 feet apart	$0.30
‡No. 10—Extra Strong, 1 inch Diameter Steel Tubing, Complete with Brackets and Screws, for use where Brackets are more than 4 feet apart	.35
‡No. 13—Trolley, 1 inch Diameter Steel Tubing, Complete with Bracket and Screws for use on Trolley Ladders	.30
‡No. 7—Wood Track 1 inch Wide, Complete with Screws, for use on 1¾ inch or larger Shelf	20



No. 2.

INSTRUCTIONS.

In ordering Ladders Nos. 1 or 6, Give following Exact Measurements:
Height from Floor to Top of Base or Counter Shelf.
Width of Base Shelf to Front Edge of Uprights or Partition.
Height from Base Shelf to Top of Shelf Opposite which the Track is to be fastened.

If No. 6 or Extra Strong Steel Track is wanted, Give the following Measurements:
Entire Length of Line of Shelving, and as All Joints of Steel Track Must Meet at Center of Uprights, Begin at Outside of One End of Shelving and Measure to Center of Upright that is Nearest to, but inside of 18 feet. Repeat the Operation Measuring from Center to Center of Uprights in each instance and Order the Pieces of Track to Correspond with the respective Measurements. Specify the Number of Brackets Required, Counting One for Each Upright in the Shelving.

If No. 7 Wood Track is Wanted, it is only necessary to state the Number of Feet. For Wood Track it is necessary to have a 1¾ inch Thick Shelf to Fasten it to, and this Shelf must Project One Inch Farther than the Front Edge of Uprights in Shelving. The Track is Screwed to the Edge of this Shelf.

If No. 15M Ladder and No. 13 Trolley Track is wanted, it is only necessary to State Height of Ceiling from Floor and the Number of Feet of Track required. If Trolley Track is Fastened to a Plastered Ceiling, Strips of Wood Six (6) inches Long are Required to Fasten the Brackets to these Strips to be fastened to the Joist.

Special Ladders. Estimates will be Furnished on Application for Ladders of Special Style, Design and Finish.

For further information, write for a Milbradt Rolling Ladder Catalog and Order Blanks.

Instructions How to Set up Fixtures Furnished with each Ladder
Crated in any Quantity.
Average Weight per Ladder about 60 lbs.

‡Goods marked thus (‡) are not carried in stock and can only be furnished by shipment direct from factory.

BOYS' TOOL CHESTS.

CHESTNUT BOX, VARNISHED, LOCKED CORNERS, STAINED MOULDINGS.

Per dozen

No. 011. Size of Box 16½x7½x6¼ in.; complete $12.00

Contains 11 Tools, as follows:

1 Saw	1 Try Square	1 Gimlet
1 Hammer	1 Screw Driver	1 Rule
1 Hatchet	1 Nail Set	1 Pencil
1 Triangle	1 Brad Awl	

Also Sand Paper, Nails, Screws.

Six in a crate, weight per crate, 40 pounds.

CHESTNUT BOX, VARNISHED, LOCKED CORNERS, STAINED MOULDINGS, BRONZED HANDLES, WITH LOCK AND KEY.

Per dozen

No. 11. Size of Box 18x8¼x7 in ; complete.... .. $15.00

Contains 14 Tools, as follows:

1 Brace	1 Screw Driver	1 Hatchet
2 Bits	1 Nail Set	1 Gimlet
1 Saw	1 Chisel	1 Try Square
1 Hammer	1 Brad Awl	1 Rule
1 Pencil		

Also Sand Paper, Nails, Screws.

Six in a crate, weight per crate, 48 pounds.

CHESTNUT BOX, VARNISHED, LOCKED CORNERS, STAINED MOULDINGS, BRONZED HANDLES, WITH LOCK AND KEY.

Per dozen

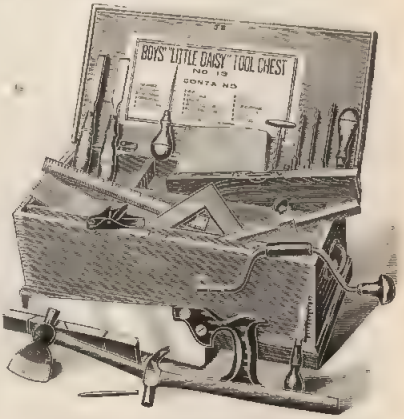
No. 12. Size of Box, 19x9¼x7½ in.; complete..... .. $22.50

Contains 18 Tools, as follows:

1 Brace	1 Mitre Box	1 Try Square
3 Bits	1 Pencil	1 Rule
1 Saw	1 Hatchet	1 Plane
1 Hammer	1 Gimlet	1 Screw Driver
1 Scratch Awl	1 Brad Awl	1 Chisel
1 Nail Set		

Also Sand Paper, Nails and Screws.

Six in a crate, weight per crate, 60 pounds



CHESTNUT BOX, VARNISHED, LOCKED CORNERS, STAINED MOULDINGS, BRONZED HANDLES, WITH LOCK AND KEY AND PARTITIONED TRAY.

Per dozen

No. 13. Size of Box 20x9¾x8 in.; complete..... $30.00

Contains 21 Tools, as follows:

1 Brace	1 Try Square	1 Hatchet
3 Bits	1 Mitre Box	1 Screw Driver
1 Level	1 Saw	1 Nail Set
2 Chisels	1 Hammer	1 Brad Awl
1 Gimlet	1 Plane	1 Pencil
1 Rule	1 Marking Gauge	1 Scratch Awl

Also Sand Paper, Nails and Screws.

Six in a crate, weight per crate, 74 pounds.

PLUMBS AND LEVELS.

STANLEY'S LEVELS ONLY.

		Per dozen
No. 102.	Arch Top Plate, Two Side Views, Polished, Assorted, 10 to 16 in.	$4.25
No. 108.	Arch Top Plate, Two Side Views, Polished, Assorted, 18 to 24 in	5.35

STANLEY'S PLUMBS AND LEVELS.

		Per dozen
No. 00.	Arch Top Plate, Two Side Views, Polished, Assorted, 18 to 22 in	$7 20
No. 0.	Arch Top Plate, Two Side Views, Polished, Assorted, 24 to 30 in	8.25

STANLEY'S PATENT ADJUSTABLE PLUMBS AND LEVELS.

The Spirit Glass in both level and plumb is set in a metallic case, covered by a brass top plate and securely fastened by a hinge and adjusting screw.

		Per dozen
No. 8.	Arch Top Plate, Two Side Views, Polished and Tipped,, Assorted, 24 to 30 in.	$13.75
No. 1.	Mahogany, Arch Top Plate, Two Side Views, Polished but not Tipped, Assorted, 24 to 30 in.	16.50

		Per dozen
No. 5.	Triple Stock, Arch Top Plate, Two Ornamental Brass Lipped Side Views, Polished and Tipped, Assorted, 24 to 30 in.	$20 50
No. 10.	Mahogany, Triple Stock, Two Ornamental Lipped Side Views, Arched Top Plate, Polished and Tipped, Assorted, 24 to 30 in.	27.00

STANLEY'S PATENT ADJUSTABLE DUPLEX PLUMBS AND LEVELS.

These Levels have the ordinary form of leveling glass, set in the top surface of the Stock. For any uses where an observation of the glass, sidewise, may be found convenient. An additional leveling glass is set in the side, at the opposite end from the Plumb. Both Glasses are protected by Brass Discs, can be seen from either side, and are inserted in the level with the least possible removal of wood from the Stock.

		Per dozen
No. 25.	Mahogany, Arch Top Plate, Improved Duplex Side Views, Polished, Tipped, Assorted, 24 to 30 in.	$24.00
No. 30.	Cherry, Arch Top Plate, Improved Duplex Side Views, Polished, Tipped, Assorted, 24 to 30 in	18 00

All above, half dozen in a box.

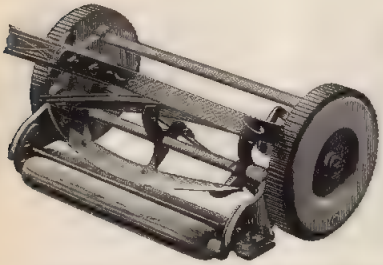
LAWN MOWERS.

VAN CAMP'S SPECIAL.

Four Revolving Cutter Blades, Bicycle Dustproof Ball Bearing Journal, Drives from Both Ends, Oil Tempered Blades, Light Running, Cuts Smooth and Noiseless, 8½ in. Wheels, Diameter of Cutter 5½ in. Finely Made Throughout.

Width of Cut, Inches	12	14	16	18	20
Each	$12 00	13.00	14.00	15 00	16 00

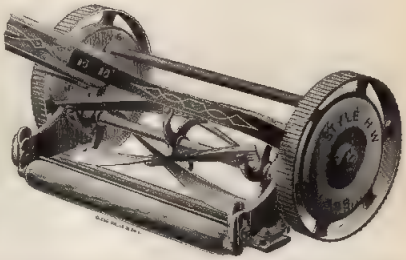
QUIGLEY.



No. 100. Three Cutters, 8 in. Wheels, Diameter of Cutter 5½ in. Well Made, Durable and Perfect in Action.

Width of Cut, Inches	12	14	16	18
Each	$4.00	4.00	4.00	4.00

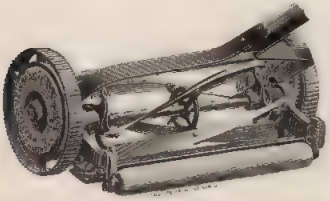
QUIGLEY HIGH WHEEL.



Four Cutters, Heavy Bronze Bearings, Ring Ratchet Clutch, 9½ in. Raised Wheels, 6 in. Cutter, Noiseless Action, Self-Sharpening, Continuous Cut.

Width of Cut, Inches.....	14	16	18	20
Each	$6.80	7.20	7.80	8.80

NEW MAGIC.



Four Revolving Blades, Raised Wheels, Noiseless Ratchet Clutch, High Speed, Adjustable Throughout, Self-Sharpening, Continuous Cut, 8 in. Wheels, 5¼ in. Cutter, Ball Pivot Bell Knife.

Width of Cut, Inches	12	14	16	18
Each	$5 70	5 50	5 50	5 50

THE GENUINE COES will not only protect you against unnecessary labor, but against tearing the corners off nuts, slipping of wrenches, and other evils common to ordinary kinds, but unknown to the COES.

It is the strongest and best wrench on the market to-day, and will give you a lifetime of good service.

Look for the Star 91 trademark; none are genuine unless so marked. This trademark means that 70 years of experience has contributed to make the COES the satisfactory tool that it is to-day.

Don't forget that the GENUINE COES is made of steel castings, hardened by our special process, and is 30 per cent. stronger than any imitation.

Send for the Wrench book.

Coes Wrench Company

WORCESTER, MASSACHUSETTS

New York Agents

J. C. McCARTY & CO., 10 Warren Street, New York City
J. H. GRAHAM & CO., 113 Chambers Street, New York City

CLOCKS.

ART NEVEAU ASSORTMENT, (Continued.)

No. 269

No. 270

No. 269. Art Neveau Finish, Height, 11¾ in., Ivory Finish Dial, Gilt Center, Bevel Plate Glass.
No. 270. Art Neveau Finish, Height, 10¾ in., Ivory Finish Dial, Gilt Center, Bevel Plate Glass.

No. 271

No. 272

No. 271. Art Neveau Finish, Height, 10¾ in., Ivory Finish Dial, Gilt Center, Bevel Plate Glass.
No. 272. Art Neveau Finish, Height, 10¼ in., Ivory Finish Dial, Gilt Center, Bevel Plate Glass

Per case

Art Neveau Assortment, Contains Six Clocks. The four shown above and two on the preceding page.... . $16.00

Each assortment in a case. We do not Break Cases.

CLOCKS.

CEYLON.

DORE.

	Each
Ceylon, Ormolu Gold Plated, 6¾ in. high, 32-hour movement, Ivory Finished Dial, Gilt Center, Bevel Glass	$2.75
Dore, Ormolu Gold Plated, 8½ in. high, 32-hour movement, Ivory Finished Dial, Gilt Center, Bevel Glass	3.50

ART NEVEAU ASSORTMENT.

No. 267.

No. 268

No. 267. Art Neveau Finish, Height, 10 in., 32-hour movement, Ivory Finished Dial, Gilt Center Bevel Plate Glass
No. 268. Art Neveau Finish, Height, 10¾ in., Ivory Finished Dial, Gilt Center, Bevel Plate Glass.

Art Neveau Assortment Continued on Next Page.

KEEN KUTTER CROSS-CUT SAWS.

CHIPAWAY CROSS CUT SAWS.

No. M128

No. M133

No. M303

CHIPAWAY DOUBLE BIT AXES.

CHIPAWAY SINGLE BIT AXES.

KEEN KUTTER TOOL CABINETS.

No. K1[illegible]

CHIPAWAY TOOL CABINETS.

No. C10

KEEN KUTTER SINGLE BIT AXES.

KEEN KUTTER DOUBLE BIT AXES.

KEEN KUTTER HANDLED HAMMERS.

CHIPAWAY HANDLED HAMMERS.

CHIPAWAY
TRADE MARK

KEEN KUTTER HATCHETS.

KEEN KUTTER HATCHET, USED 31 YEARS.

J. B. Long Hardware Co.

27 and 29 E. Washington Street

PHOENIX, ARIZ., January 11, 1901.

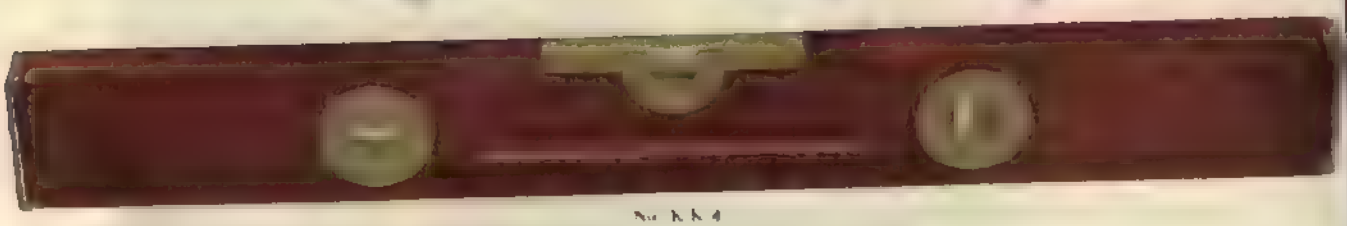
MESSRS. SIMMONS HARDWARE CO.
ST. LOUIS, MO

Gentlemen: This Hatchet was bought by J. B. Long, of a Mr. Pierson (who ran a store in Breckenridge, Mo.,) in 1872. In December of the same year it was taken to Grand Rapids, Michigan; in 1878 it was carried to Manistee, Michigan; in 1881 to Fresno, Cal.; in 1883 to Phoenix, Ariz.; and again in 1885 it was carried to Fresno, Cal.; in 1886 it was again taken to Phoenix, Ariz., and has been in constant use as a household tool for the entire time. The Handle in the Hatchet is the original one — it never having been broken — and the Hatchet has been used by three generations.

Yours truly,

J. B. LONG.

KEEN KUTTER TROWELS, LEVELS, SQUARES AND CALIPERS.

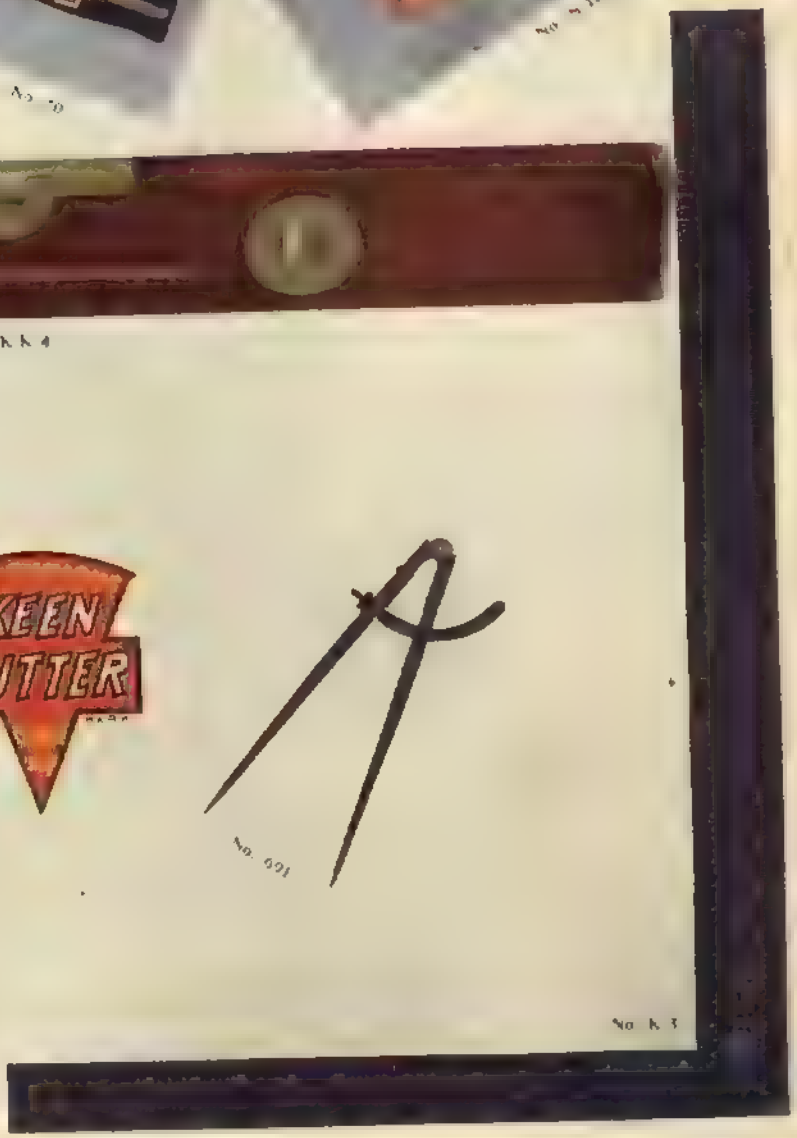


No. K K 4

No. 10

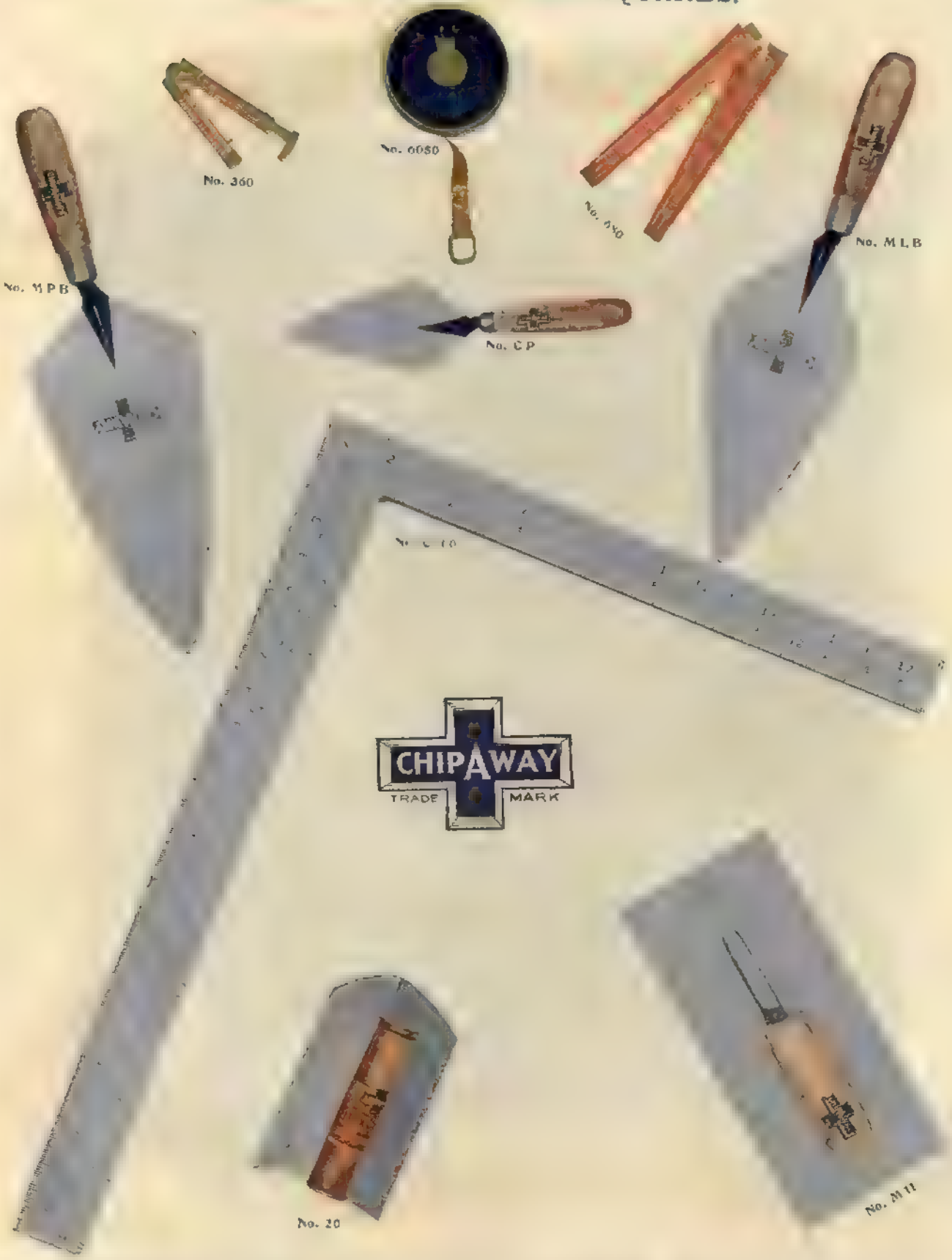
No. 691

No. 120



No. K 3

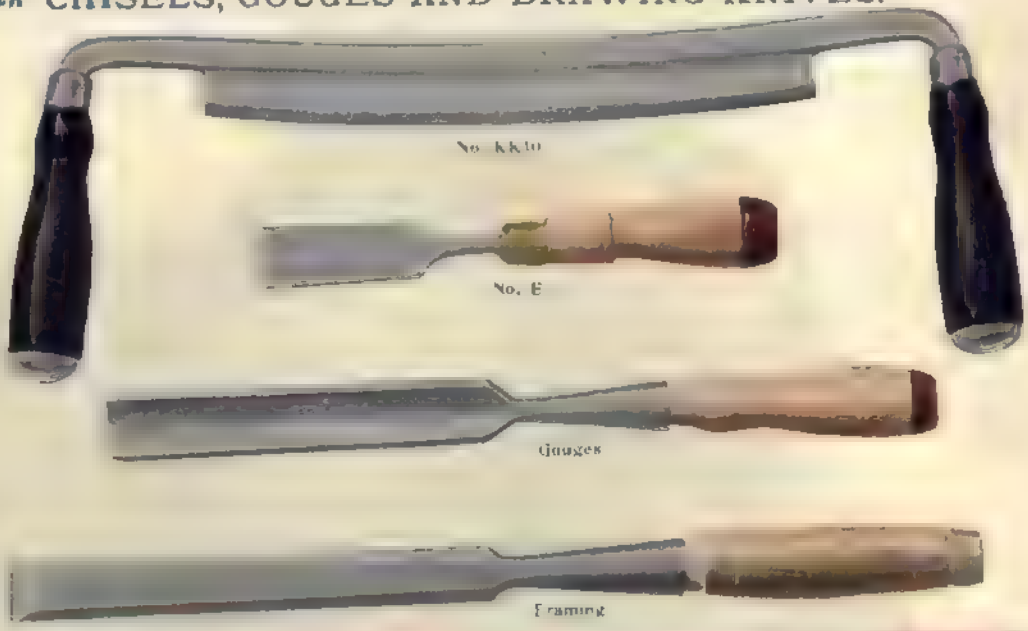
CHIPAWAY TROWELS AND SQUARES.



E. C. SIMMONS' RED LINE RULES AND BLUE BRAND TAPE LINES.

KEEN KUTTER CHISELS, GOUGES AND DRAWING KNIVES.

Corner



No. 88B

CHIPAWAY CHISELS AND GOUGES.

No. B.

KEEN KUTTER PICKS, MATTOCKS AND HOES.

CHIPAWAY PICKS, MATTOCKS AND HOES.

KEEN KUTTER PLANES.

KEEN KUTTER PLANES.

KEEN KUTTER LAWN MOWERS.

No. N D H 16

KEEN KLIPPER LAWN MOWERS.

No. K H 16

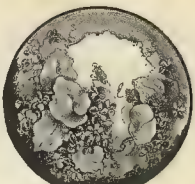
No. K H 16

FINE HAND PAINTED CHINA

PRICES EACH.

No. 160 Plate, 8½ inches diameter, pansy design, gold border.....$2 50

No 161 Plate, 8½ inches diameter, fruit design, gold border..... $2 50

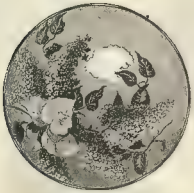


No. 53 9½ inch Plate. Violets, gold border... ....$2 90

No. 54 9½-inch Rose Plate. Light green tinting, gold bord r .. . $3 15

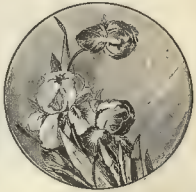
No. 145 9-inch Plate. Pink, red and white roses, brown and blue tinting $3 50

No. 143 9½-inch Plate Large chrysanthemums, white and red, light tinting, gold border.....$4 00

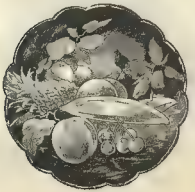


No 141 9½-inch Plate . Lilac design, light blue and red tinting gold border. $4 40

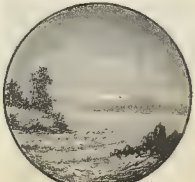
No. 13 B 9½-inch Plate. Large pink, red and white roses, fancy gold border, $4 65



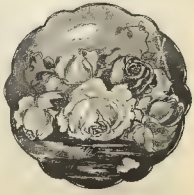
No. 156 Plate, 9¼ inches diameter. Iris design, gold border $4 75



No 56-D 9¼-inch Fruit Plate Peaches, cherries, pineapple and banana, dark brown tinting, gold border $5 00



No. 161 9¼-inch Plate. Ocean scene, mountain and trees in background, gold border..... .. ....$5 00



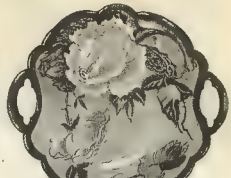
No 56-B 9¼-inch Plate. Roses, water and scenic effect, gold border.....$5 00

FINE HAND PAINTED CHINA

PRICES EACH.

No. 175 Plate. 9¼-inch diam., fancy design, gold border $4 75

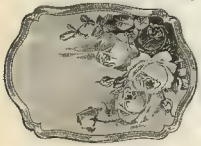
No. 61 10¾-inch Cake Plate. Large red, pink, white roses, ½-inch gold border $6 60



No. 61 Handled Cake Plate. 10½-inch diam., rose design, deep gold border $9 40

No. 110 Sugar and Cream Set. Lily of the Valley decoration, Deep red border, gold rim, gold handle per set $13 75

No. 113 Tea Set. Three pieces, small red roses, gold handles Sugar and Cream only ... $23 75
... 12 40



No. 173 Brush and Comb Tray. 10 in long, 7½ in. wide, ½ inch gold border, rose design $5 00

No 97 3 pint Lemonade Jug. Red and white roses, gold handle and rim $8 15

No. 63 5-inch Rose Ball. Fancy gold edge top, 3 gold feet $2 40

No. 174 Combination Hairpin Holder and Pin Tray. 4 in high, gold top, chrysanthemum design $3 75

No. 14 6¾-inch Bud Vase. Rose design, gold top and rim, light green and brown tinting $3 15

No. 89 6-inch Trinket Tray. Red Roses, gold edge $1 40

No 38 5-inch rose center Gold top $4 25

No 78-B 5 inch footed Bon Bon. Light green pink outside, red roses inside, gold foot, gold edge $3 75

No. 32 B Tankard. Grape design, gold dragon handle, gold edge top $16 60

No 120 A 7 inch Olive Dish. Rose design, gold edge. $4 25

No. 18-E 14-inch American Beauty Vase $14 40

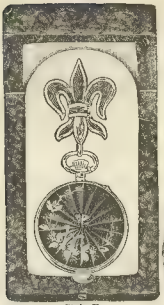
No. 17-B 11½ inch Rose Vase. Gold top and bottom $8 50

No. 20 8-inch Vase. Practicable for long stem flowers, fancy gold effect, on bottom, gold rim top, fruit decoration $17 50

LADY RACINE CHATELAINE WATCHES

Open Face and Hunting, Stem Wind and Set. Prices Each.

ILLUSTRATIONS ARE EXACT SIZE.



Style F

Open Face, 11 ligne, transparent hard enameled back and front inlaid decorations, assorted designs or plain enamel assorted colors gold plated centers and pendants, full jeweled cylinder movements, reversible swivel pendant on case complete with enameled pin and plush box.

No. 9736 Plain enamel $8.80
No. 9737 Inlaid enamel . . 9.60
Watch only, without pin or box
No. 9738 Plain enamel $7.40
No. 9739 Inlaid enamel 8.20

Are by far the best Chatelaine Watch made, over 2,000,000 now in use in the United States alone. They are factory made and all parts interchangeable. A full line of finished material on hand, all styles (except the enameled) have jointed cases and inside caps, and all are pendant set.

If you want a reliable time piece, a neat, well-made durable watch buy a LADY RACINE.

Style A Style B Style C Style D. Style E.

(When ordering enameled watches state color and design desired also make a second choice.)

Fancy Enameled Chatelaine Watches.

Open Face, 11 ligne beautifully transparent hard enamel back and front, gold filled centers and pendants, rich colors in dark blue, red green and turquoise blue, elegant assorted gold inlaid decorations, some with Louis XV designs, all fitted with reliable full-jeweled stem wind and set movements with enameled, gold plated or gold filled pins and silk plush boxes to match watch. Reliable goods and big sellers.

No. 9740 Watches only full-jeweled cylinder movements, any design or color . . $ 8.20
No. 9741 Watches only with full-jewel **Lady Racine** movement, best in the market 15.30
No. 9742 Watches only with **7-jewel Lever Lady Racine movement** 20.00
No. 9743 Nameless watches, No. 9740, with enameled pin and silk plush box to match..... . . 9.60
No. 9744 **Lady Racine Watch,** No. 9741, with gold filled enameled pin and silk plush box to match.... 17.80
No. 9745 **Lady Racine 7-jewel Lever Watch,** No. 9742, with gold filled enameled pin and silk plush box to match 22.50

10 Ligne Solid 14k Gold.
Plain bassine case, 10 jewel **Lady Racine** movement, plain or fancy dial.
No. 9746 Hunting $31.80
No. 9747 Open Face 28.50

10 Ligne Sterling Silver.
Plain bassine or engraved case, 7 jewel **Lady Racine** movement.
No. 9748 Plain dial. $13.00
No. 9749 Fancy dial 13.60

10 Ligne Gun Metal.
Plain bassine case, 7 jeweled **Lady Racine** movement.
No. 9750 Plain dial $11.20
No. 9751 Fancy dial 11.80

11 Ligne Gun Metal.
Open Face bassine case, 6 jeweled **Lady Racine** movement.
No. 9752 Plain dial. $9.00
No. 9753 Fancy dial. 9.60

11 Ligne Silver.
Open Face plain or engraved 6 jeweled **Lady Racine** movement.
No. 9754 Plain dial $10.00
No. 9755 Fancy dial 10.60

SEE PAGES 211 to 213 FOR SOLID GOLD AND GOLD FILLED CHATELAINE PINS

Gold Filled 20 Year.
11 ligne bassine case, plain polished, satin or Roman finish, 7 jeweled **Lady Racine** movement.

No. 9756 Plain dial $14.40
No. 9757 Fancy dial 15.00
No. 9758 Hunting. 17.20

Gold Filled 20 Year.
11 ligne engraved case, 7 jeweled **Lady Racine** movement.
No. 9759 Open Face $14.80
No. 9759½ O. F. Fcy dial . . 15.40
No. 9760 Hunting . . 18.60

Gold Filled 20 Year.
11 ligne engraved case, 7 jeweled **Lady Racine** movement.
No. 9761 Open Face. $14.80
No. 9761½ O. F. Fcy dial 15.40
No. 9762 Hunting . . 18.60

Gold Filled 20 Year.
11 ligne bassine case with raised gold ornamentation 7 jeweled **Lady Racine** movement
No. 9763 Open Face. $18.80

No. 9763½ O. F. Fcy dial 19.40

Gold Filled 20 Year.
11 ligne bassine case, polished satin or Roman finish with rose diamond star, 7 jeweled **Lady Racine** movement.

No. 9764 Open Face $17.80
No. 9765 Hunting . . 20.80

IMPORTED CHATELAINE WATCHES

Open Face and Hunting Stem Wind and Set. Prices Each.

THE ISABELLA.

THE ISABELLA.

THE ISABELLA

THE ISABELLA, CRESCENT 25-YEAR GOLD FILLED CASE.

5-0-Size Crescent gold filled case, warranted for 25 yrs., reversible swivs. bow, fine 15-jewel lever movement. Cream dials, blue figures, plain gilt, spade hands, pendant set. The best relia ble small size watch with American 20-d filled case at a popular price.

No. 9766	Open face, plain polished	$27.00
No. 9767	Open face, floman	27.00
No. 9768	Open face, engraved	27.00
No. 9769	Hunting, plain	27.00
No. 9770	Hunting, engraved	30.00
	Open face watches furnished with fancy dials for 50c extra.	31.30

Solid Gold, The Guinand.

Solid gold, Open Face, 11 ligne, nicely engraved or plain polished case, solid gold crown and pendant bow, plated cap, full-jeweled nickel, well finished cylinder Guinand pendant set movement

No. 9771	8k engraved	$13.50
No. 9772	14k engraved	17.50
No. 9773	9k plain	14.70
No. 9774	14k plain	17.50

Beware of watches of this character which have chean plated crowns and pendant bows

Solid Gold.

Open Face, 11 ligne, solid gold plain case, 5 rose diamonds, (plated cap), 7 jewel cylinder movement, pendant set

No. D-9775	Fleur-de-lis design	$12.50
No. D-9776	Star and crescent design	12.50

Same style watch

No. D-9777 Hunting case.. 17.50

New Very Thin Model Chatelaine Watch.

Open Face, 11 ligne, very finely finished, full-jeweled cylinder movement, pendant set, plain polished bassine case with inside cap, silver or gilt dial, black figures.

No. T-9778	Gun metal	$ 9.50
No. 9779	Steel, silver	10.50
No. 9780	14k gold	32.70
No. T-9781	9k gold	21.86

Gun Metal.

Open Face, 11 ligne, gun metal bassine polished case, full-jeweled cylinder movement, fancy metal frame dial, pendant set

No. D-9782 .. . $6.35

Nurses' Watch.

O size 18 ligne, Open Face, solid sterling silver plain bassine case, fine 15 jewel gilt lever **Lady Racine** movement and center second, very reliable

No. 9783	Same movement in solid 14k gold case	$21.60
No. 9784	Same movement in a gun metal case	50.50
No. 9785	Same movement in a gold filled case. Warranted for 20 years.	19.80
No. 9786		37.00

Sterling Silver Bracelet Watch.

Sterling silver case, with a pigs' skin leather band, fitted with the reliable **Lady Racine** 6 jeweled cylinder movement. This is the latest novelty watch, but also a useful, convenient time piece, that is always in sight no matter how many wraps the wearer may have on.

No. 9787 . . . . . $11.20

Hunting, Solid Silver Case.

Hunting, 12 ligne, solid silver case, rich engravings, with **The Fairy** jeweled escapement nickel cylinder movement with second hand.

No. 9788	Each	$7.50

12 ligne, Hunting, silver, fancy assorted engravings, nickel jeweled escapement movement, white enameled dial.

No. 9789	Each	$5.50

Hunting, 11 ligne, solid silver, nicely hand engraved, silver cap, gold crown, the **Lady Racine** movement with second hand lever set.

No. 9790	Each	$11.50

Solid Silver Case.

Solid silver, Open Face, chatelaine, assorted engravings. **The Fairy** 5 jeweled movement, stem wind and pendant set with second hand, silver cap, heavy case.

No. 9791 Plain dial .$6.40

Solid Silver Case

Silver chatelaine, 12 ligne, Open Face, jointed Lock and snap bezel case with inside cap, antique pendant gold crown, assorted engravings, fitted with a 5-jewel nickel Lever finished cylinder escapement movement.

No. 9792	Each	$5.60

Same in cheaper grade movement

No. 9793	Each	$4.50

Gun Metal.

Open Face, 11 ligne, gun metal, bassine case with inside cap silver trimmed, full jewel cylinder movement, gold hands pendant set with chatelaine pin to match.

No. D-9794	Fancy dial	$6.96
No. D-9795	Plain dial	6.50

Solid Gold.

Open Face, 10 ligne, solid gold plain polished case, plated cap, full-jeweled nickel cylinder movement, fancy dial, with fine solid gold chatelaine pin as shown above

No. 9796. .....$14.50

Watch without chatelaine pin.

No. 9797 . .. 11.10

PAINTING BRUSHES

3 per cent extra discount allowed when full packages are ordered. Nos. 33, 34, 35, and 36 not broken

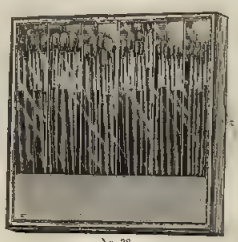
No.		Per gro.
33	Yellow finished handles, nickel ferrules, camel's hair brushes, very small size, 2 dozen on card	$3 50
34	Same as No 33, larger size	4 00
35	" " No 33, medium size	4 50
36	" " No 33, large size	5 00

No.		Per gro.
10	Black polished wood handles with metal ferrules, full length 7 inches, 1½ gross in box	$8 70
11	Maroon polished wood handles with metal ferrules, full length 8 inches, 1 gross in box	10 80
12	Same as No 11, black handles, 1½ gross in box	10 80
13	" " No 11, larger size, full length, 8¼ inches, ¾ gross in box	15 00

ASSORTMENTS

We do not break assortments

No. 37



No 38

No. 39

No.		Per box
2A	1 gross brushes, assorted, four sizes, and ¼ gross colored wood handles in glass top box	$1 60
14	Same as No 2A, real camel's hair brushes	2 40
19	1 gross camel's hair brushes, metal ferrules, black handles, assorted sizes, in glass top display box	9 00
17	2 dozen on card, assorted from very small to medium size, camel's hair, metal ferrules, red handles	Per card 76

No.		Per box
37	Contains 8 dozen brushes, red handles, nickel ferrule, assorted sizes in satin, glass covered box, size 8x7¾	$1 00
38	Contains one gross of six sizes camel's hair brushes, black handles, with nickel ferrule, number stamped on each in gilt, in gilt partition box with hinged glass cover, size 8x8	4 50
39	Contains one-half gross assorted of three sizes camel's hair brushes, black handles, with metal ferrule, and one gross camel's hair pencils in quills with sticks, all put up in two sliding partition drawers, in folding case with glass top, size 9¾x8½	5 00

FRANG'S

No.		Per gro.
7	Brushes	$11 26

PASTE BRUSHES

No.		Per gro.
20	Paste brush, black bristles, metal ferrule, red handle, 1 dozen on card (we do not break cards)	$5 00

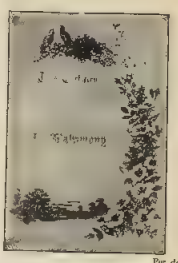
MARRIAGE CERTIFICATES

We do not break packages. Each one-fourth dozen in package

No. M15 Plain black, size 14x11. Per doz. $0 68

No. 8 Crane's parchment diploma style certificate; this is lithographed in the highest style of art, blue-black and is pronounced one of the most beautiful published Per doz. $3 00

No. 26 Lithographed designs of lilacs and lilies of the valley, size 11x14 Per doz. $2 00



No. 153 Lithographed design of flowers, birds and landscape Per doz. $1 80

No. 215 Lithographed design in gold and colors, size 9½x12½ $1 50
No. 130 Lithographed in gold and tints, with spaces for 2 cabinet photographs, size 14x17 2 00
No. 7 "Voyage of Life," lithographed on card board in black and gold, space for two photographs size 12x16 2 88

No. 82 Lithographed floral design and scene "The meeting of Jacob and Rachel" in natural colors, size 11½x16 Per doz. $2 16

No. 28 Lithographed designs of pansies in natural colors, size 14x17. Per doz. $3 00

No. M13 Blue, black and gold, boat scene, with anchor, cross, rings and flowers, space for 2 cabinet photographs, size 14x19 Per doz. $3 00

MARRIAGE CERTIFICATES—Continued

We do not break packages. Each one-fourth dozen in package

No. Per doz.
152 Lithographed designs of roses and flowers in natural colors, size 15x20 . . . $4 20
16 Space for 1 cabinet photographs, in black and gold, with floral bells and roses . . . 3 00

No. Per doz.
150 Lithographed floral design in color, design of Boaz and Ruth, with biblical inscriptions, size 15x20 . . . . . $3 80

No. Per doz.
110 Lithographed floral design in color and wedding bells, and scene, "The Meeting of Isaac and Rebecca," size 15x19 . . . $4 00

No. Per doz.
24 Lithographed floral design in natural colors, and landscape at the well with appropriate inscription, size 15x20 . . . . . $4 00

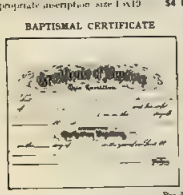
No. Per doz.
112 Lithographed designs of cornstalks, grains and fruits in the Harvest Fields, with appropriate inscription, size 15x19 . . . $4 00

No. Per doz.
118 Lithographed design of horseshoes and bells in natural colors with chased in background, size 15x19 . . . $4 00

No. Per doz.
114 Lithographed designs of red and white carnations with view of Cana of Galilee, and appropriate inscription, size 15x19 . . . $4 00

No. Per doz.
24M Lithographed design in [illegible] on circled with a cluster of beautiful roses of various colors . . . $6 00

BAPTISMAL CERTIFICATE

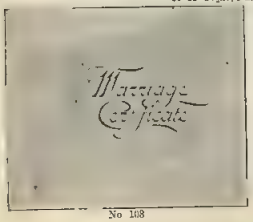


No. Per doz.
4 Crane's parchment diploma form certificate. This is lithographed in the neatest style in colors, with envelope for mailing . . . $1 50

No. Per doz.
M10 Booklet Souvenir Leaflet, neatly printed with colors, from lithographed design in front. Leaf consists of cover proper, 3 leaves with appropriate inscriptions, 3 leaves with "Autographs of Guests," printed in colors and gold, in envelope, size 5½x7, 1 dozen in package $3 30

No. Per doz.
M21 White leatherette folder, gold stamp on lap attached to which is the certificate proper, lithographed tablet on fine paper, size when open 7¾x11¾, each in embossed envelope with outside enclosure envelope, 1 dozen in package . . . $4 50

No. Per doz.
22 Our Marriage Seal, document form, style consisting of a lithographed wedding certificate, 4 pages of 1 leaf, white, with embossed gold wedding board finish . . . $4 00



No 108

No 145

No. Per doz.
M18 Lithographed in colors, design of bride and groom with sunset background, floral border, space for 2 cabinet photographs, with appropriate inscriptions, size 14x19 . . . . . $3 50
147 Lithographed rococo border in gold and colors, with designs of American Beauty roses in full bloom at top and bottom, size 14x17 . . . . . 2 50

Each 1 dozen in package.

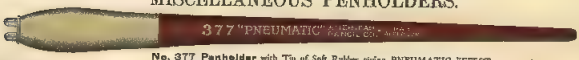
No. Per doz.
34 Folder, made of Crane's bond paper, with embossed envelopes, size when folded 4½x6 . . . . . $1 50
103 Booklet, 4 pages and cover, fastened by heavy silk cord, silver embossed title and choice sentiment inside, printed in soft tints on finest of wedding paper. On the first page an appropriate selection, then follows the certificate and 2 pages for guests' names, size 10¾x8¾ 4 00

A. C. McCLURG & Co.'s CHAMPION GLASSFINISH PENHOLDERS.

THE FOLLOWING ARE ACTUAL SIZES.

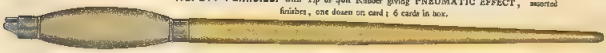
522. 511. 613. 612. 611. 403. 402. 401. 102.

MISCELLANEOUS PENHOLDERS.



377.

No. 377 Penholder with Tip of Soft Rubber giving PNEUMATIC EFFECT, assorted finishes, one dozen on card; 6 cards in box.

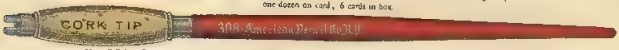


378

No. 378 Penholder with tip of soft compressible rubber that conforms readily to position of fingers. One dozen on card. 6 cards in a box.

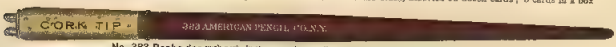
379.

No. 379 Penholder. PNEUMATIC (soft rubber) TIP; stick finished in olive green, one dozen on card, 6 cards in box.



308.

No. 308. Penholder. Cork tip; finished in red, walnut and black, assorted on dozen cards; 6 cards in a box



383.

No. 383 Penholder with cork tip that is either thinner than is the rule. One dozen on card. 6 cards in box

019.

No. 019. "The Bank" penholder. Large taper, natural glass finish, cork tip.

843. R.W.B.

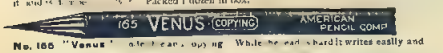
50

INDELIBLE PENCILS. **LEAD PENCILS.**

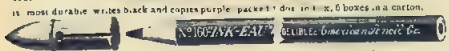
A. C. McCLURG & CO.

INDELIBLE PENCILS.

No 171 Venus Copying Pencil contains finest Copying Lead made; retentive and has an excellent quality with sanitary finish... The pencil has a faint water mark running through it and ... Packed 1 dozen in box.

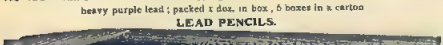


No. 165 "Venus" ... copying. While the lead is hard it writes easily and is most durable; writes black and copies purple; packed 1 doz in box, 6 boxes in a carton.

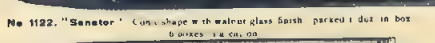


No 160 "Ink Eaz"—Indelible and copying. Purple glass finish; gilt point protector; heavy purple lead; packed 1 doz. in box, 6 boxes in a carton

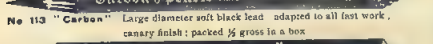
LEAD PENCILS.



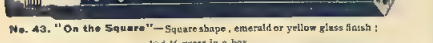
No 1122. "Senator" Cone shape with walnut glass finish packed 1 doz in box 6 boxes in a ca. ...



No 113 "Carbon" Large diameter soft black lead adapted to all fast work, canary finish; packed ½ gross in a box

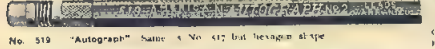


No. 43. "On the Square"—Square shape, emerald or yellow glass finish; packed ½ gross in a box



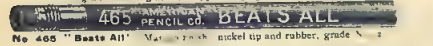
No 517 Autograph"—Embossed finish; first quality of lead nickel tip and rubber packed ½ gross in a box

No. 519 "Autograph" Same as No 517 but hexagon shape



No. 76. "Army and Navy"—Flag design; glass finish; nickel tip and rubber grade No ... glass finish, packed ½ gross in a box.

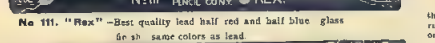
No 465 "Beats All" Matted finish nickel tip and rubber, grade No ... packed ½ gross in a box.



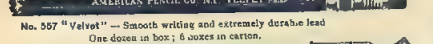
No 1040 "Dickens Pencil"—Round cedar polish inserted rubber. Packed 1 gross in a box

B B Bonny Blue

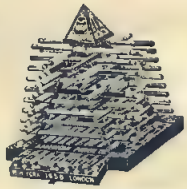
No 111. "Rex"—Best quality lead half red and half blue glass finish same colors as lead



No. 557 "Velvet" — Smooth writing and extremely durable lead One dozen in box; 6 boxes in carton.



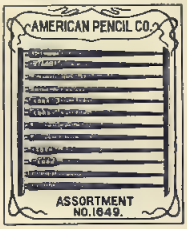
No. 261 "Tablet" — Thin diameter pencils with assorted finishes and gilt point protector with jewel. One dozen on card; 6 cards in box.



1656 Fraternal Assortment. This is the most novel and striking ¼ gross pencil assortment ever placed on the market. It contains ½ gross of the highest grade round and hexagon pencils packed three deep in the pyramid and the remain ... three dozen in the compartment underneath.

No. 1653 LYRE ASSORTMENT contains a ½ gross high grade round and hexagon pencils, finished in assorted colors with assorted tips and colored rubbers, and is of exceptional value for ... money

1657 RACK ASSORTMENT Contains ½ gross of the best medium priced pencils both round and hexagon, in a very strong assortment which can be refilled with stock and styles.



No. 1649 PENHOLDER ASSORTMENT Made up of two each of six different styles of well known cork-rubber tip and all wood penholders

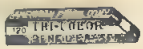
No 1656 Bridge Penholder Assortment, containing ½ gross of the best value penholders on the market, comprising cork rubber and fancy tips, also all wood holders. This is one of the biggest values offered in quarter gross boxes.

No. 866 COMPASS PENCIL. Yellow finished pencil, very strong compass with needle point.

No. 919 School Crayon. Round, 4½ inches long, six assorted colors in a box. One dozen in a carton.

No. 200 PROGRAM PENCILS, two inches long with cord. Packed 500 assorted or solid colors to the box.

No. 290 PROGRAM PENCIL, silk Bulb and Cord. Packed one hundred assorted or solid colors in the box.



TRI COLOR ERASER, red white and blue colored eraser made 120-30 40 45-50 60 12 pieces to the lb. Cut shows size of 120.

TRADE MARK "KLINCHER," REGISTERED

MOUSE TRAPS.

Are constructed with a heavy Wire Bail, which extends beyond, and overlaps the block after being snapped. This is a very essential feature

Strong and Well Made.

"KLINCHER*."

Per Gross

No. 715—16 Gauge Coppered Wire Spring and Bail; Plain Wood Block and Trigger; Base 2x4 inches; Bent Wire Loop projects over end of Block. Weight per gross about 12 lbs. $6.00

One Dozen in a Cardboard Box

DEAD SHOT*.

Per Dozen

No. 615—15 Gauge Coppered Wire Spring and Bail; Plain Wood Block and Trigger; Base 1¾x[illegible] inches; [illegible] Wire [illegible] over end of Block. Weight per d[illegible] 1½ lbs. $1.70

One Dozen in a Ca[illegible] Box.

Revolving, Wire.

Per Dozen

No. R—REVOLVING; Wood Block, Red Stained, [illegible] inches; Tinned Wire [illegible] inches; 6 Mesh Tinned Wire Cage [illegible] inches; Tin Door with Brass Spring. Weight per dozen about 6 lbs. $3.50

One-half Dozen in a Package

Delusion Pattern.

Per Dozen

No. D—DELUSION; Wood [illegible] Red Stained; Perforated Tin Front [illegible] Self Setting; Height 2½ inches; Width [illegible] Length 7¼ inches. Weight per d[illegible] $3.[illegible]

Packed Loose

Per Dozen

No. 50—CHOKER; SHEET STEEL BASE, Tinned; 5 Holes; 18-Gauge Coppered Wire Springs; Diameter 4½ inches; Weight per dozen about 2 lbs. $2.00

One Dozen in a Package.

Square

Wood Chokers.

Wood Base, Red Stained; 18 Gauge, Coppered, Wire Springs.

Round

Nos.	1H	2H	3H
Number Holes	1	2	3
Size, Base, inches	2⅛x2¼	2¼x4	2¼x5
Weight per dozen about, lbs	1	2	2¼
Per dozen	$0.20	60	90

Nos.	4H	5H	6H
Number Holes	4	5	6
Size, Base, inches	4½	5	5½
Weight per dozen about, lbs	[illegible]	3¼	3½
Per dozen	$[illegible].20	1.50	1.80

One Dozen in a Package.

TRADE MARKS "SIER INO" AND "KLINCHER," REGISTERED

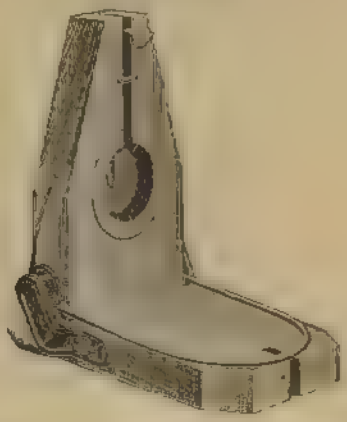
RAT TRAPS.

Per Dozen

No. 725—KLINCHER*; 12 Gauge Coppered Wire Spring; Wood Trigger; 3¼x7 inch Wood Block; Bent Wire Loop Projecting over end of Block; Weight per dozen about 5½ lbs $4 00

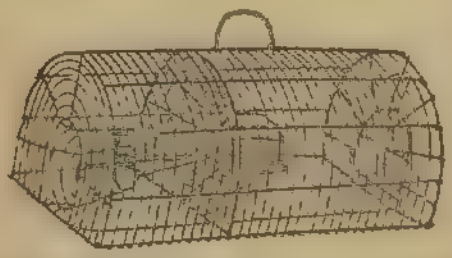
Per Dozen

No. 625—DEAD SHOT*; 10 Gauge Coppered Steel Wire Spring; Black Japanned Steel Trigger; Plain Wood Block 3½x6¾ inches; Bent Wire Loop Projecting over end of Block; Weight per dozen about 8 lbs..... $6 00



Per Dozen

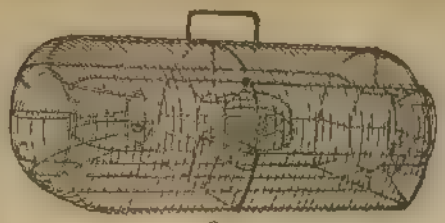
No. 8—SURPRISE; 11 Gauge Coppered Steel Wire Spring; Plain Wood Blocks; Size, Lower, 3x5¾ inches; Size Upper, 3x3¾ inches, Weight per dozen about 11 lbs $3 00



Per Dozen

No. 49—STERLING*; Coppered Steel Wire; Thirteen 12 Gauge Brace Wires; 16 Gauge Body Wire, ½ inch apart; Ends Strongly Braced with 12 Gauge Wire; All Wires Securely Laced, are Immovable; Length 19 inches; Width 10½ inches, Height; 7¾ inches; Weight per dozen about 44 lbs..... $35 00

RAT AND MOUSE TRAPS.



Bronzed Steel Wire, Strongly Braced and Securely Laced

Genuine Marty

Nos.	1 For Rats	3 For Rats
Size, inches	20¾x15¼x9½	16x9¼x7¼
Capacity in Rats	30	21
Number of Brace Wires	16	12
Gauge of Brace Wires	14	12
Gauge of Body Wires	14	16
Weight per dozen about, lbs	48	26
Per dozen	$90 00	36 00

Nos.	3½ For Rats	5 For Mice
Size, inches	17x8½x6¼	8¼x4½x3¾
Capacity in Rats and Mice	18	20
Number of Brace Wires	8	6
Gauge of Brace Wires	12	12
Gauge of Body Wires	16	16
Weight per dozen about, lbs.	20	6
Per dozen	$51.00	15 00

French and Imitation French

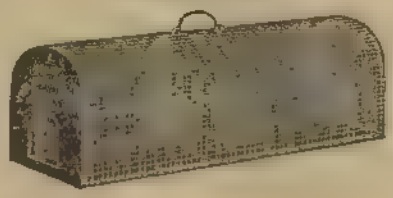
Per Dozen

No. 30—FRENCH; Capacity 20 Rats; Size 18x8½x6½ inches; Nine 11 Gauge Brace Wires; 15 Gauge Body Wires; Weight per dozen about 24 lbs. $35 00

No. 35—FRENCH, Capacity 18 Mice; Size 7½x3¾x5½ inches, Six 12 Gauge Brace Wires; 16 Gauge Body Wires; Weight per dozen about 6 lbs. 12.00

No. 39—IMITATION FRENCH Capacity 18 Rats, Size 15½x8x6½ inches, Nine 12 Gauge Wires; 16 Gauge Body Wires, Weight per dozen about 18 lbs. 24 00

Packed Loose



Per Dozen

No. 59—KORKER; Length over all 24 inches, Height 7½ inches, Width 7½ inches.... $18 00

The Korker Trap has Two Compartments, the Front being the Catching Chamber and the Back the Collecting Chamber; The Rat enters the Trap at the Opening in Front Chamber, which leads direct to the Bait, which is Attached to the Shutter Catch; the Least Touch on the Bait will Drop the Shutter; The Rat will then work his way into the Next Chamber and by Entering, he RESETS THE TRAP AUTOMATICALLY. By so doing, he Locks himself in and Opens the Trap for the next one.

Plain Wood Bottom, Center and Ends, Heavily Painted, Lined with Tin to prevent gnawing; 16 Gauge 3 Mesh Galvanized Wire Cloth Cover; Securely Soldered.

One Dozen in a Crate; Weight per Dozen about 40 lbs.

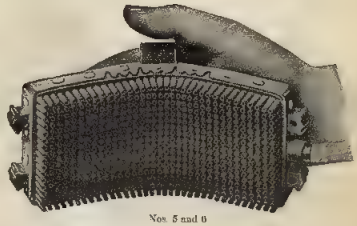
BATH SPRAY

Nos. 1 and 4

No.		Per doz.
4	Two-inch metal rose with rubber buffer, heavy tube five feet long, bulb a metal covered	$15 00
1	Massage bath spray, fitted with round perforated massage brush with flexible teeth, long hose with slip-over attachment to fit any faucet	24 00
3	Same as No. 1, with handle	30 00
6	Bath spray and massage brush combined, made of rubber with hollow rubber teeth through which the water flows, complete with tubing, faucet connection, and metal handle, large size	66 00
5	Same as No. 6, medium size	32 00

SWEDISH MASSAGE AND BATH BELT

No.		Per doz.
8	Bath belt, back of belt is covered with loofah with layer of rubber sponge on the reverse side, length 27 inches	$24 00



Nos. 5 and 6

RUBBER TOILET BRUSHES

No.		Per doz.
1141	Maroon rubber with rubber strap to fit hand size 3½x6¾	$2 80

No.		Per doz.
1140	Faultless toilet brush, maroon rubber, with button fastener to fit hand, size 3½x8¾	36 00

RUBBER GLOVES

For Household or Garden Use

NON-PA-REIL

Non-Pa-Reil rubber gloves. The recognized standard of all household rubber gloves. Full length gauntlet, wide wrist, tapering fingertips, perfect workmanship.

No.			Per doz. pairs
1150	Size 7	white	$16 80
1151	" 7½	"	16 80
1152	" 8	"	16 80
1153	" 8½	"	16 80
1154	" 7	black	16 80
1155	" 7½	"	16 80
1156	" 8	"	16 80
1157	" 8½	"	16 80

NON-PA-REIL—Continued

No.			Per doz. pairs
1158	Size 7	pink	$16 80
1159	" 7½	"	16 80
1160	" 8	"	16 80
1161	" 8½	"	16 80

ACORN BRAND

No.		Per doz. pairs
1166	Size 7	$9 00
1167	" 7½	9 00
1168	" 8	9 00
1169	" 8½	9 00

SWEDISH MASSAGE AND BATH GLOVE

No.		Per doz.
7	Bath glove, palm of glove is covered with layer of rubber sponge and back with loofah length 8 inches	$21 00

ATOMIZERS

No. 37

No.		Per doz.
260	Perfume atomizer metal tubes	$4 20
37	For the toilet and general purposes, continuous spray, hard rubber spray tube, a good low priced article	7 00
43	Throat and nasal atomizer, continuous spray, 3 hard rubber tips	10 00

No.		Per doz.
12	Perfume atomizer, metal tube	$7 34

No.		Per doz.
210	Magic powder blower for throat affections where fine powder is prescribed, long metal tube	$7 34

No.		Per doz.
257	Hygeia hard rubber unbreakable tube, continuous spray, for oil or water throat use	$9 50

No.		Per doz.
49	For toilet or general use continuous spray	$6 50

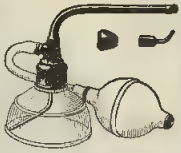
No.		Per doz.
36	For toilet or general purposes, continuous spray hard rubber spray tube	$7 34
40	Hard rubber Magic atomizer, for toilet or throat affections, large hard rubber tube	9 34
33	For throat or ordinary uses, hard rubber tube	12 00

No.		Per doz.
46	Magic nasal oil atomizer, for spraying oils or liquids of every description, hard rubber spray tube	$8 00

No.		Per doz.
46	Magic throat oil atomizer, for spraying oils or liquids of every description for throat affections or general purposes, hard rubber spray tube	$9 34

ATOMIZERS—Continued

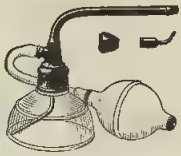
No. Per doz.
1M Fox oil or vaseline all metal... $9 00



Long hard rubber tube, with metal screw tip, corrugated bulb and heavy inside stem

No.		Per doz.
51	One tip	$9 00
52	Two tips	9 50
53	Three tips	11 00

No. Per doz.
22 Twin tip nebulizer a convenient and simple device for inhaling medical vapors into the bronchial tubes and lungs through both nostrils simultaneously, hard rubber fittings $13 00

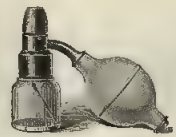


Long bulb, with hard rubber valves, large inside stem and screw cap all hard rubber

No.	Per doz.
31	$10 00
32	10 50
33	12 00

No. Per doz.
2 The Magic atomizer, short metal tube $12 00

No. Per doz.
256 Magic nasal atomizer, for liquefying and spraying vaseline algolene, or atomizing medicated oils of every description. $12 00



No. Per doz.
252 For liquefying and spraying pure vaseline, algolene or atomizing medicated oils of every description, hard rubber nasal tip $9 00

253 Same as No. 252, with throat tip added 11 00

259 Hygeia all hard rubber fittings, for liquefying and spraying vaseline, algolene, or atomizing medicated oils of every description .. 11 20

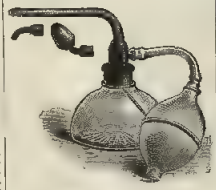
No. Per doz.
44 Hard rubber Magic atomizer, for all affections of throat, nasal organs, catarrh, and general use $13 34

47 Magic throat and nasal oil atomizer for spraying oils or liquids of every description for throat and nasal affections, 3 hard rubber spray tubes $13 34

48 Hard rubber Magic oil atomizer, for spraying vaseline, algolene glymol, and medicinal oils of every description, 3 hard rubber spray tubes 20 00

No. Per doz.
30 Hard rubber throat Magic atomizer, 1 hard rubber screw tips, including long straight tube for throat or general applications, downward tube for the larynx backward spray for the posterior nares, and nasal tip, ... $22 00

No. Per doz.
1 Sams' medicalizer, a scientifically constructed pump atomizer for use with oil or medicines. Simple in construction can be taken apart and boiled out, metal parts are brass finely nickel-plated $24 00



Nos. 47 and 48

WATCH CASE ATOMIZER

This is a complete and perfect atomizer Can be carried in vest pocket filled ready for use

No.		Per doz.
10	For water and light fluids	$8 00
11	" oil.	8 00

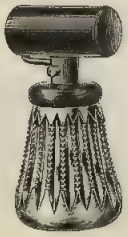
SAMS' PERFUMIZERS

No. 82550

No. 82551

Have no valves simple in construction made of brass nickel-plated, warranted to last

No.		Per doz.
[illegible]	One ounce, pressed glass	$12 00
[illegible]	" " " "	15 00
82553	Bone [illegible] glass assorted colors	15 00
[illegible]	One ounce, pressed glass	15 00



No. 82552

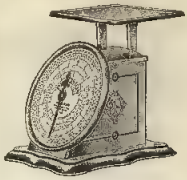
No. 82553

POSTAL SCALES

LETTER AND MERCHANDISE

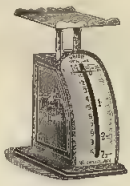
Give exact cost of postage in cents on all kinds of mail matter to any part of the United States and Canada

No		Per doz.
50	The "Gem." Made of best cold roll steel, oxidized copper finish, height 4 inches, weighs 1 lb. by ½ ozs.	$16 00
51	The "Ideal." Handsomely enameled metal trimmings, height 6 inches, weighs 2 lbs by ½ ozs.	19 20
52	The "Superior." Same as the Ideal, height 7 inches, weighs 4 lbs by ½ ozs	26 60



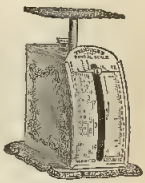
THE PRECISION

No		Each
53	Made of steel, beautifully japanned, 3¾x4¾ inch, nickel-plated top plate. The figures on the dial are in two colors, making them distinct and easily read. Capacity each 4 lbs by ½ ozs	$2 70



THE UNION

No.		Each
	Capacity 2½ lbs. by ½ ozs	
13	Nickel plated	$3 50
14	Japanned	3 60



THE PRINCESS

Capacity 1 lb by ½ ozs., beautiful enameled frame, very attractive and popular

No.		Each
21	Silver plate	$ 5 40
22	Gun metal	5 40
23	Brass	5 40
24	Sterling silver	10 00

THE CRESCENT

Capacity 1 lb. by ½ ozs

No.		Per doz.
1	Nickel plated	$16 64
2	Gun metal	16 64
3	Oxidized copper	16 64

THE VICTOR

No.		Each
	Capacity 1½ lbs. by ½ ozs.	
9	Nickel plated	$3 00
10	Oxidized copper	3 00

THE U. S. POSTAL

No.		Each
	Capacity 4 lbs. by ½ ozs	
15	Nickel plated	$3 50
16	Oxidized copper	3 50

THE COUNTESS

For lady's desk or library table, capacity 1 lb. by ½ ozs.

No.		Each
25	Silver plated	$ 5 70
26	Antique metal	6 70
27	Antique brass	6 70
28	Sterling silver	11 00

THE FAMILY

A very attractive family or counter scale, large dial, steel frame, 24 lbs. by ozs.

No		Each
7	Steel platform	$1 80
8	Same with tin scoop	2 20

THE COLUMBIA

No.		Each
	Capacity 2 lbs. by ½ ozs	
11	Nickel plated	$3 00
12	Japanned	3 00

THE NATIONAL

No.		Each
	Capacity 4 lbs. by ½ ozs.	
17	Nickel plated	$4 30
18	Japanned	4 30

THE MIDGET

Capacity 2 lbs. by ¼ ozs., size 4 inches long, weight 3 ozs.

No.		Per doz.
30	Nickel plated	$8 50

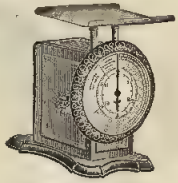
THE STAR

Capacity 1 lb. by ½ ozs

No.		Each
4	Nickel plated	$2 20
5	Gun metal	2 20
6	Brass	2 20

THE MERCANTILE

No.		Each
54	Steel, beautifully japanned, porcelain top plate. Capacity, 12 lbs by ½ ozs.	$3 50



THE COMMERCIAL

Capacity 12 lbs. for mail and express packages.

No.		Each
19	Japanned	$5 40
20	Striped	5 40

SCALES—Continued

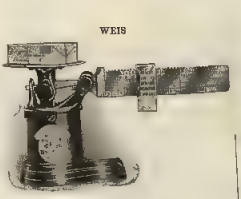
MAIL AND EXPRESS

For banks and large business houses, 7½ inch dial, glass dash

No.		Each
29	Capacity 16 pounds by ½ oz	37 00

THE ATWATER

No.		Each
255	Capacity 1 pound	$4 20
256	" 2 pounds	5 50
257	" 4 "	7 00



WEIS

No.		Each
251	Capacity 1 lb.	$5 00
252	" 2 lb.	8 30
254	" 4 lb.	9 00

POSTOFFICE BOXES

½ dozen in package

		Per doz.
1 part,	3¾x4¼x1¾	$2 10
2 parts,	7¼x4¼x6¼	3 80
3 "	11 x4¼x6¾	5 30

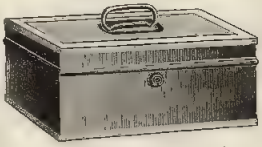
STATIONERS' TINWARE

CASH BOXES WITHOUT TRAYS

With sunken handles. Two flat keys to each box

No.			Per doz.
3	Outside measurement	9½x 6¾x3¾	$10 20
2	"	10⅞x 7¾x4¼	11 90
111	" "	11¼x 8¾x5	13 00
1	" "	12¾x 8¾x5¼	13 30
113	" "	13½x10 x6½	16 80
115	" "	15 x1 x7	21 30
116	" "	16¾x12 x7½	22 70
118	" "	18¾x13¾x8½	28 80

Acme Combination Cash Boxes Without Trays

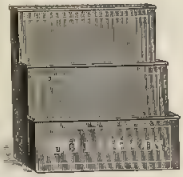


With Acme combination lock; finished in rich maroon. Full explanation of the working of the lock accompanies each box

No.		Each
62	Outside measurement 10⅞x 7¾x4¼	$3 40
61	" " 12¾x 8¾x5½	3 60
14	" " 14½x10½x6½	4 30

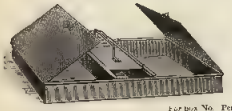
For trays see top of next page

BILL HEAD BOXES



		Per doz.
1 part, 9x ⅛x 5¼,	½ dozen in package	$2 10
2 parts, 9x1¼x 8½,	½ " " "	3 80
3 " 9x2⅞x11½,	⅓ " " "	5 30

TRAYS FOR CASH BOXES



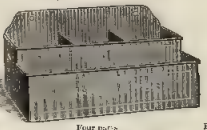
No.		For box No.	Per doz.
3	Tray	3	$3 80
2	"	2 and 52	5 20
1	"	1 " 51	5 80
111	"	111	5 80
113	"	113	8 40
14	"	14	10 90
15	"	115	11 90
16	"	116	15 10
18	"	118	16 80

YALE BANDED CASH BOXES

Best product of the locksmith's and tinsmith's art. Double protection at every edge and corner. Special Yale lock with two paracentric keys to each box, no two alike, unless made so to order. Keys cannot be duplicated except by special order enclosing one of the originals.

No.		Each
119	Size outside measurement, 12¼x 9½x5¾	$7 50
120	" " " 14¾x10½x6½	9 50
121	" " " 16¾x12 x7½	9 60
122	" " " 18¾x13¾x8½	11 50

ENVELOPE CASES



Four sizes

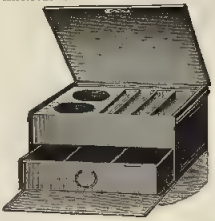
		Per doz.
3 parts (square), 4½x3½x6	⅛ dozen in package	$3 90
4 " (1 long and 3 narrow), 10¾x3x5½,	⅙ dozen in package	5 00

BOND BOXES

Two flat keys to each box

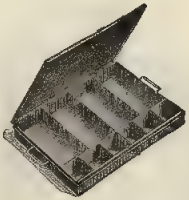
No.		Per doz.
2	9x4 4x2¼	$9 80
1	10½x5½x2¾	10 50
3	11½x5½x4	11 00

IMPROVED CASH BOX OR MONEY DRAWER



No.		Each
100	11x8¼x4¼	$2 80

OFFICE BOX



No.		Per doz.
21	Office Box. Four long spaces for bills, six small spaces for change or stamps, with lock and key, size 14½x11¾x	$29 40

FIREPROOF BOX

Absolutely fireproof. A perfectly safe receptacle for valuable papers. First class padlock, duplicate keys, weight 50 pounds, size outside 13 inches long, 9 inches wide, 6½ inches deep, size inside, 9 inches long, 6 inches wide, 4 inches deep

	Each
	$10 00

MILES ALARM TILL

	Each
Made of wood and arranged so as to attach under counter, size of drawer 15¾ inches square	$4 70

STANDARD TIME LOCK CASH BOXES WITHOUT TRAYS

With patent non-pickable locks. Directions accompany each box

No.			Each
110	Outside measurement	10⅞x 7¾x4¼	$4 60
112	" "	12¼x 8⅞x5¼	4 20
114	" "	14½x11½x6¾	4 80

SIDE SADDLES.

Each

No. 417—Cow Girl $38.00

Tie Strings as shown in Cut.

Packed Loose; Weight Each about 25 lbs.

DESCRIPTION.

TREE—No. 248; Ruwart; 18 inch Seat; Heavy Ironed; Canvas Covered.
SKIRTS—13½ inches Deep, extending over Front; 30½ inches Long; Wool Lined; Basket Corner Stamped.
CANTLE—Roll; Hand Stitched
SEAT—Plain Leather Covered; Jockey and Seat in One Piece, Jockey Basket Stamped under Leaping Horn, Hook on Off Side.
HORNS—Horn and Leaping Horn, Leather Covered; Seamed Backs.
DOUBLE RIG.
STIRRUP STRAP—⅞ inch; With Slide Loop Made to Buckle.
GIRTH STRAPS—1¼ inch; To Buckle and Tie.
OFF BILLETS—No. 234; 1¼ inch; To Buckle.
GIRTHS OR CINCHAS—No. 209; Front, 20 Strand, Flank, 18 Strand; White Angora Hair; California; Leathered and Connected.
STIRRUP—Plain Wood; With Side and Toe Fender; Basket Corner Stamped.
LEATHER—Russet.

Each

No. 418—Cow Girl $37.00

Tie Strings as shown in Cut.

Packed Loose; Weight Each about 25 lbs.

DESCRIPTION.

TREE—No. 248; Ruwart; 18½ inch Seat, Heavy Ironed; Canvas Covered.
SKIRTS—13½ inches Deep, 25 inches Long, Wool Lined; Embossed Border.
OVERSKIRT—15 inches Deep, 18½ inches Wide; Fancy Checker Stamped.
CANTLE—Roll; Hand Stitched.
SEAT Leather, Checkered Stamped; Checkered Stamped Front and Jockey; Seamed Jockey; Pocket on Off Side
HORNS—Horn and Leaping Horn, Leather Covered; Seamed Backs.
DOUBLE RIG
STIRRUP STRAP—⅞ inch; With Slide Loop Made to Buckle.
GIRTH STRAPS—1¼ inch; To Buckle and Tie.
OFF BILLETS—No. 234; 1¾ inch; To Buckle.
GIRTHS OR CINCHAS—No. 209; Front, 20 Strand; Flank, 18 Strand; White Angora Hair; California; Leathered and Connected.
STIRRUP—Plain Wood, With Side and Toe Fender; Buckskin Lined, Full Checker Stamped.
RINGS—Covered and Stitched.
LEATHER—Russet Skirting.

SIDE SADDLES.

No. 419 Somerset or English.....Each $36.00

Packed Loose; Weight Each about 20 lbs.

DESCRIPTION.

TREE—Special English Somerset Side; 18½ inch Seat; Canvas Covered.

SKIRT—15 inches Deep, 19 inches Wide, extending under Forepiece; Hogskin Impressed.

FOREPIECE—Buckskin Seating, Fancy Quilted.

SEAT—Buckskin Seating, Fancy Quilted; With Seamed Leather Jockey; Leather Pocket on Off Side.

HORNS—Horn and Leaping Horn Covered with Buck Seating, Quilted. Seamed Leather Backs.

STIRRUP STRAP—⅞ inch; With Slide Loop Made to Buckle.

GIRTH STRAP—1 inch; To Buckle.

GIRTH—3 inch; Fancy Worsted; With Buckle.

SURCINGLE—3 inch; Fancy Worsted, Fastened to Tree under Jockey, Running over Top of Skirt with Buckle.

STIRRUP—No. 4A; Ladies' Slipper; Buckskin Covered.

PAD—Sheepskin; Bound with Buckskin Seating; Muslin Facing.

LEATHER—Russet.

No. 416—Morgan Side; Double Lace Rig.....Each $21.00

Packed Loose; Weight Each about 14 lbs.

DESCRIPTION.

TREE—No. 607; Morgan Side; 18 inch Seat; Canvas Covered.

SKIRT—16½ inches Deep, extending over Front; 19 inches Wide; Embossed Border, with Fancy Pressed Forepiece.

SEAT—Forepiece, Cantle and Seat One Piece of Calfskin Seating, Quilted Seamed Leather Jockey attached; Hook on Off Side.

HORN—Calfskin; With Seamed Leather Back.

STIRRUP STRAP—¾ inch; With Slide Loop; To Buckle.

GIRTHS OR CINCHAS—No. 166; 5 inch; Fancy Cotton; Mexican, with Rings.

GIRTH STRAPS—No. 165; 4 inch; Fancy Cotton; Mexican, With Rings.

STIRRUP—No. 29; Ladies' Metal; X. C. Plate (Tinned).

BARS—Padded; Hair Stuffed; Sheepskin Covered.

LEATHER—Russet.

No. 0. TUBULAR LANTERNS.

Two-pieced tube, No. 1 burner, ⅝ inch wick, No. 0 globe, locked burner, inside guard.

With white globes.

Fig. 10. Plain tin..per doz., $ 9.50
Fig. 11. " " copper plated.....per doz., 13 50
Fig. 12. Plain tin, brass plated.....per doz., 13.50
Fig. 13. Solid brass, " 30 00
Fig. 14. " " nickel plated . .. .. . per doz., 36.00
Fig. 10. With red, green, or blue globes.....per doz., 12.50

No. 2. TUBULAR LANTERNS.

Two-pieced tube, No. 2 burner, 1 inch wick, No. 0 globe, locked burner, inside guard. Same as No. 0, out made heavier and stronger.

With white globes.

Fig. 16. Plain tin.....per doz., $13 00
Fig. 17. " " copper plated .... " 17.00
Fig. 18. " " brass " .... " 17 00
Fig. 19. Solid brass . .. . " 40 00
Fig. 20. " " nickel plated.. " 46.00
Fig. 16. With red, green, or blue globes, per doz..... 16.00
Above lanterns with bull's eye globes, additional..... .....per doz., .50

"COLD BLAST" LANTERNS.

Cannot Blow Out.

No. 1. TIN ONLY.

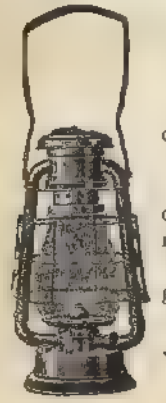
Two-pieced tube, No. 1 burner, ⅝ inch wick, No. 0 cold blast globe.

Fig. 21. With white globe, per doz.....$13 50
Fig. 22. With ruby, green, or blue globe..... per doz., 16.50

No. 2. COLD BLAST LANTERNS

Two-pieced tube, No. 2 burner, 1 inch wick, No. 0 cold blast globe.

Fig. 23. Plain tin ..per doz., $16 00
Fig. 24. Solid brass . " 48.00
Fig. 25. " " nickeled, per doz.... ... . 54 00
Fig. 23. With ruby, green, or blue globe .....per doz., 19.00
With bull's-eye globes, additional.. . " .50



No. 39. COLD BLAST MILL LANTERNS.

No. 00 burner, ½ inch wick. Burns common kerosene.

Endorsed by insurance companies.

Especially constructed to keep the dust out of the tubes, making it a safe mill lantern.

Has wound bail and is heavily guarded.

TUBULAR, TIN ONLY.

With white globe....per doz., $17 50
" bull's-eye globe, " 18.00

No. 39 STANDARD RAILROAD LANTERNS

For Lard or Sperm Oil or Kerosene

Made of best steel wire and IX tin No caps or guards to become unsoldered or broken off

SINGLE WIRE LANTERNS

Figure 288 Tin Bottom, Single Guard
" 289 " " Double
" 290, Wire " Single "
" 291, " " Double "

DOUBLE WIRE LANTERNS

Figure 97 Tin Bottom Single Guard
" 98 " " Double "
" 286 Wire " Single "
" 287 " " Double "

LIST PRICES

With either No 1 flat or No. 1 ratchet lard oil or No. 1 convex kerosene burners

Figure Numbers	Per Dozen		
	With White Globes	With Green or Blue Globes	With Ruby Globes
288 and 289	$12 00	$16 50	$20 00
290 " 291	12 00	17 00	21 00
97 " 98	13 00	17 50	21 50
286 " 287	13 50	18 00	22 00

IMPROVED TUBULAR LAMPS

No Chimney

Patent wind break, cannot blow out outside wick regulator, silvered glass reflector

No	Height inches	Width inches	Burner No	Wick inches	Price Each
118	16½	8¾	2 C B	1 B	$5 50
117	22½	11½	7 C B	1½ D	6 50
115	24½	13½	8 C B	1½ D	8 00

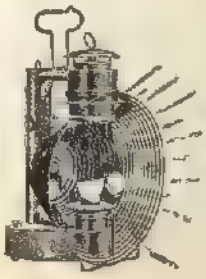
Guarded additional $1 00

STATION LAMPS

For Kerosene Oil

No	Glass inches	Burner No	Wick inches	Price Each
1	8x10	1	⅝	$2 50
2	10x12	2	1	2 90
3	11x13½	2	1	3 30

No. 20 TIN TUBULAR "COLD BLAST" SEARCHLIGHT



Reflector, 12 inches in diameter, 7 inches deep. No. 2 burner 1 inch wick. No. 0 tubular globe finished in blue, japanned and [illegible] I [illegible] throws a bright [illegible] and steady light and burns as well out of doors as in it, without smoking or flaring, and is not affected by the wind or strong drafts.

No. 20 Fig 176 Japanned and bull's eye globe, per doz. $30.00
No. 20, Fig 177 Japanned and plain globe, per doz. 29 50

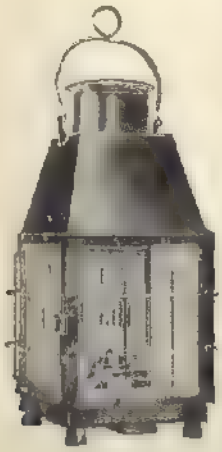
TUBULAR DASH LAMP

No. 2 tin dash lamp. Two-piece tube, side spring safety with bull's eye or plain globe, No 2 burner, No. 0 globe, 1 inch "B" wick. Locked burner.

Finished in blue japanned or plain tin.

Weight 15 lbs. each, net. Packed six in a case.

Figure No	Style	Price per case	Price Each
No. 245.	Plain tin, tin globe	$	$
No. 246.	" " B E		
No. 247	Japanned, plain "		
No. 248.	" B E. "		



TUBULAR GOVERNMENT GUARDED SQUARE LAMP

Constructed without tubes as on other tubular square lamps. This lamp is provided with an air shaft on the back which freely supplies the burner with air, giving a strong light unaffected by heavy winds. Made with 8 inch square silvered corrugated glass reflector and is especially adapted for government use, railroad stations, etc. Packed one in a case.

No. 2 hot blast burner. 1 inch B wick. Weight 9¼ lbs net. Price each .....$.

REAR END TAIL LAMP

A standard lamp of best construction. For steam or street railways. Ruby semaphore lens. Burns oil Will not blow out. Will not jar out.

Price dozen
" each....

STANDARD HEADLIGHTS

Fig. 19

Figure No. 19, round standard headlight: Extreme height 17¼ inches, board bottom 6x16.

Price each.....$14.00

This light is adapted for narrow gauge or traction engines, locomotives and inspection cars Well made and always reliable.

Figure No. 48. 10 inch square street railway headlight constructed on the same lines as the round light. Extreme height 21 inch, bottom board 7x13 inches

Price each.....$11.00

LANTERN GLOBES

No. 0. Tubular

No. 0. Tubular, "Bull's Eye"

No. 39. R. R.

No		White, per Doz.	Green or Blue per Doz	Ruby, per Doz
0	Cold Blast	$1.20	$4.00	$4.00
0	Tubular, common	.90	3 50	3 50
0	Bull's Eye, common.	1 02	.....	.....
1	Tubular, common.	1 12	4 00	5 00
39	R R., common..	1 50	4 00	4 00

No. 2, S. S. S. TUBULAR MILL LANTERN

No. 2 hot blast burner. 1-inch "B" wick. No. 0 tubular globe. Can be furnished with lock so can not be tampered with.

Plain Tin

No. 594 without lock, per dozen, $18.00. Each . $1.80
No. 595 with lock per dozen, $25.20. Each . 2.50

CADET BRASS LANTERN

½-inch wick. Cadet globe. A neat little brass lantern for use when a large light is not required.

No. [illegible]. Price per dozen, $4.50
Each.. . . . . .

TRIANGULAR STATION LAMPS

For Kerosene Oil

All fitted with silvered glass reflector; founts hold sufficient oil to burn 20 hours.

List Prices

No.	Glass Inches	Burner No.	Wick Inches	Diameter Reflector, Inches	Price Each
2	9¾x11	2	1	8	$2.00
3	11⅞x13¾	2	1	10	3.30

No. 10, NEW IMPROVED SQUARE TUBULAR STREET LAMP

No. 10 burner. Outside wick regulator. Automatic extinguisher. Patent wind-break. 1½-inch "D" wick. Packed in cases of one each. Net weight [illegible] lbs.; gross weight, 35 lbs. Weight of posts, 25 lbs., net.

Price each $8.00

No. 9, IMPROVED GLOBE TUBULAR STREET LAMP

With Bottom Lift Attachment for Raising Globe

Outside wick regulator. Automatic extinguisher. 1½-inch "D" wick. No. 9 globe. No. 9 burner. Patent wind break. Burns 25 hours. Regulated to burn 4, 8, 12, 16, 20 and 24 hours.

Figure No.	Style	Price Each
102	Tin Fount	$ 6.00
340	Glass "	6.50
341	Brass "	7.00
342	Copper "	7.00
343	All Brass	11.00

Packed in cases of one each. Net weight, 7 lbs.; gross weight, 29 lbs. Weight of posts, 25 lbs., net.

No. 9, IMPROVED GLOBE TUBULAR HANGING LAMP

With Bottom Lift Attachment

Same style as above but not fitted for post.

Figure No.	Style	Price Each
111	Tin Fount	$6.00
344	Glass "	6.50

Net weight, 7½ lbs.; gross weight, 27 lbs.

ALLIGATOR TOILET SETS, ETC.

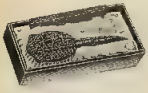
New and Attractive Goods

These goods are made from the same material as the well-known French Stag. The color is an attractive shade of brown and the surface finish is a splendid representation of the very popular and expensive alligator skin pocket books, hand bags, travelling bags, etc. Put up in satin lined pasteboard boxes.

No. 81027

No. 81028

No.		Per doz.
81027	Hair brush with 11 rows white bristles and ladies' comb	$33 60
81028	Hair brush with 11 rows white bristles and ladies' comb	33 60

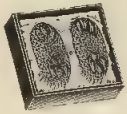


No. 81029

No. 81030

No.		Per doz.
81029	Hair brush with 12 rows white bristles and ladies' comb	$35 40
81030	Hair brush with 11 rows good white bristles, large handsome sterling silver mounting, ladies' comb	42 00

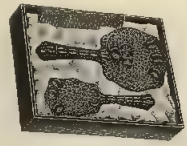
No. 81031



No. 81032

No.		Per doz.
81031	Hair brush with 11 rows good white bristles, large handsome sterling silver mounting, ladies' comb	$42 00
81032	Two military hair brushes with 10 rows white bristles	54 00

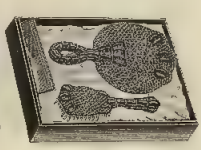
No. 81033



No. 81034

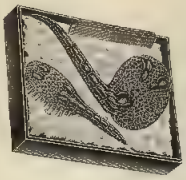
No.		Per doz.
81033	Two military hair brushes, 16 rows white bristles, large sterling silver mountings	$60 00
81034	Hair brush with 11 rows good white bristles, 4½-inch round beveled mirror, and ladies' comb	72 00

No. 81035



No. 81036

No.		Per doz.
81035	Hair brush with 11 rows good white bristles, 5-inch round beveled mirror, and ladies' comb	$78 00
81036	Hair brush with 11 rows good white bristles, 5-inch round mirror with ring handle, ladies' comb	78 00



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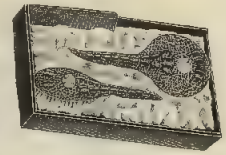


No. 81038

No.		Per doz.
81037	Hair brush with 11 rows good white bristles, bonnet mirror, size 4 x 6, long handle, comb to match	$78 00
81038	Hair brush with 11 rows good white bristles, 4½-inch beveled mirror, long handle, ladies' comb, large handsome sterling silver mountings	84 00

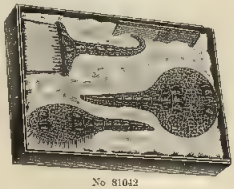
No. 81039

No. 81040

No.		Per doz.
81039	Hair brush with 11 rows good white bristles, 6-inch beveled mirror, long handle, comb to match	$84 00
81040	Hair brush with 11 rows good white bristles, 5½-inch beveled mirror, ring handle, ladies' comb	84 00

No. 81041

No.		Per doz.
81041	Hair brush with 11 rows white bristles, bonnet mirror with long handle, size of mirror 4 x 6, large handsome sterling silver mountings, comb to match	$90 00

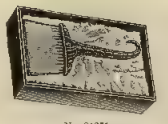


No. 81042

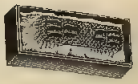
No.		Per doz.
81042	Hair brush with 11 rows good white bristles, 4½-inch beveled mirror with long handle, fine bonnet brush with horn-shaped handle and comb to match	$96 00

ALLIGATOR TOILET SETS, ETC.—Continued

No.		Per doz.
81043	Hair brush with 11 rows good white bristles, 4½-inch beveled mirror, long handle ladies' comb, and 5 pieces manicure fittings	$102 00

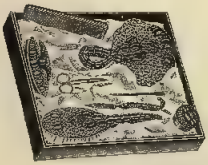


No 81051

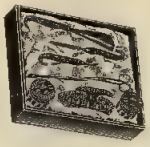


No 81053

No.		Per doz.
81051	Bonnet brush, white horse hair bristles, full length 10 inches	$24 00
81053	Cloth brush with 9 rows white bristles	36 00



No. 81044



No. 81049

No.		Per doz.
81044	Hair brush with 11 rows good white bristles 4½-inch beveled mirror, ring handle ladies' comb, and 5 pieces manicure fittings	$102 00
81049	Manicure set finest quality steels, file cuticle knife, scissors, orange stick, large buffer two pomade jars and shoehorn	54 00

No 81054

No 81055

No.		Per doz.
81054	Puff jar, heavy imitation cut glass, with powder puff, alligator cover	$12 00
81055	Paper knife, alligator handle, full length 10½ inches	9 00

No. 81056

No. 81057

No.		Per doz.
81056	Match holder and ash receiver on wood base, alligator cigar rest	$16 00
81057	Cigar jar heavy glass jar, alligator cover with holder for sponge	$21 00

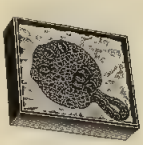
No. 81045

No.		Per doz.
81045	Hair Brush, 11 rows good white bristles, long handle,	$28 00
81066	Pocket mirror, ring handle, diameter 2½ inches	4 00
81067	Same as No. 81066, long handle,	4 00

No 81058

No.		Per doz.
81058	Necktie rack, oval chestnut wood back with ornamental circular beveled plate mirror, two alligators holding brass rod	$30 00

No 81046



No 81047

No.		Per doz.
81046	Round ring-handle mirror, heavy beveled plate glass, diameter 4½ inches	$36 00
81047	Round ring-handle mirror, heavy beveled plate glass, diameter 5 inches	42 00

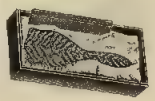
ARABIAN GAZELLE TOILET SETS, ETC.

A perfect imitation of Arabian Gazelle Horn, attractive in appearance, strong, and durable.

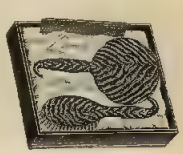
No. 81048

No. 81050 and 81052

No.		Per doz.
81048	Bonnet mirror, heavy beveled plate glass, size 4 x 6, long handle	$42 00
81050	Hat brush with 5 rows white horse hair bristles	24 00
81052	Cloth brush with 7 rows white bristles	27 00



No. 81059

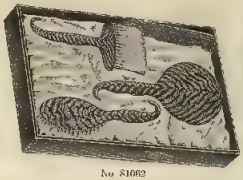


No 81060

No.		Per doz.
81059	Hair brush with 11 rows white bristles, ladies' comb	$32 00
81060	Hair brush with 11 rows white bristles, 4½-inch round beveled plate mirror and ladies' comb	66 00

ARABIAN GAZELLE TOILET SETS Continued

No. 81061



No. 81062

No. 81063

No. 81065

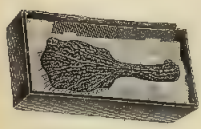
No. 81064

No.		Per doz.
81061	Hair brush with 11 rows white bristles, 4-inch, beveled plate mirror with long handle, ladies' comb	$72 00
81063	Hair brush with 11 rows good white bristles	$27 00
81064	Round beveled plate mirror, diameter 4 inches, [illegible] horn handle	33 00
81065	Bonnet brush, white [illegible] bristles, [illegible] horn handle	22 50

FRENCH STAG NOVELTIES

TOILET SETS

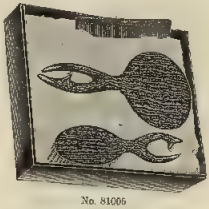
Each in sateen lined leatherette box



No. 81000

No. 81001

No.		Per doz.
81000	Hair brush with 11 rows white bristles and ladies' comb	$28 00
81001	Hair brush with 11 rows white bristles, and ladies' comb	28 00



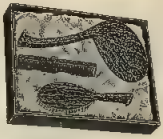
No. 81005

No.		Per doz.
81005	Hair brush with 11 rows white bristles, 4½-inch round beveled mirror, and ladies' comb	$60 00

No. 81002

No. 81003

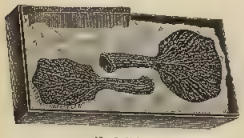
No.		Per doz.
81002	Hair brush with 11 rows white bristles, new shape, ladies' comb	$33 60
81003	Hair brush with 11 rows white bristles, 2⅝ x 4½ beveled mirror and ladies' comb	54 00



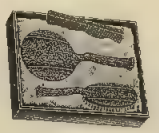
No. 81007

No. 81008

No.		Per doz.
81007	New fancy shape bonnet mirror long handle, size of mirror 4 x 6, hair brush to match, ladies' comb	$72 00
81008	Hair brush with 11 rows good white bristles, 4½-inch round prong-handled mirror, and bonnet brush with sterling silver ornaments, ladies' comb	72 00



No. 81004



No. 81006

No.		Per doz.
81004	Hair brush with 11 rows white bristles, 4½-inch round beveled mirror, and ladies' comb	$66 00
81006	Hair brush with 11 rows white bristles, 4½-inch round beveled mirror, ladies' comb to match	66 00

No. 81009

No. 81010

No.		Per doz.
81009	Hair brush with 9 rows white bristles and ladies' comb	$24 00
81010	Hair brush with 11 rows white bristles, medium size	24 00

The Auburn Cars

The Auburn Automobile Co., Auburn, Ind., U. S. A., offers for 1908 two models with similar chassis. The touring car herewith illustrated, Fig. 1, and the runabout, Fig. 2. The model H is a 5-passenger car following the general lines of a 4-cylinder machine altho the motor is two-cylinder opposed located lengthwise under the body. The cylinders are water cooled, 5¼ bore by 5 inches stroke, rated at 24 H. P. The power is transmitted by means of a thru speed and reverse planetary and center chain drive to the divided rear axle. Semi-elliptic front springs and full elliptic rear are used, both banded and perched on top of the axles. This model complete weighs 20'0 lbs. and is fitted with three oil and two gas lamps with tank or generator at the purchaser's option, a four bow black tip extra quality and complete set of tools.

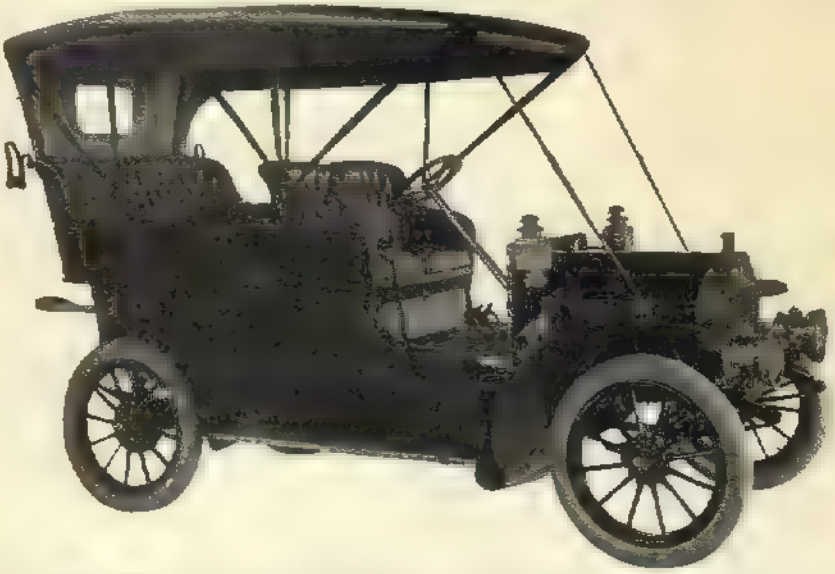


Fig. 1 Auburn, 1908 Model H 5 passenger touring car, wheel base 100 inches, gauge 56 in., tires 32 x 4 in., motor two cylinder opposed, water cooled 5¼ in. bore x 5 in. stroke, 24 H. P., planetary transmission, 2 forward speeds and reverse chain drive divided rear axle. Weight 2,000 lbs. Price on application including 3 oil and 2 gas lamps with tank or generator, four bow black top (extra quality) storage battery, complete set of tools and metal apron full length of car. Model G same as H with 32 x 3½ in. tires, less top, gas tank and storage battery and gas lamps, price $1 350.

Ignition is by storage battery and coil the usual spark and throttle levers being placed on the steering wheel. The side lever controls the high speed and the reverse and low are by pedal. The wheel base is 100 inches, gage 56 and 32x4 inch tires

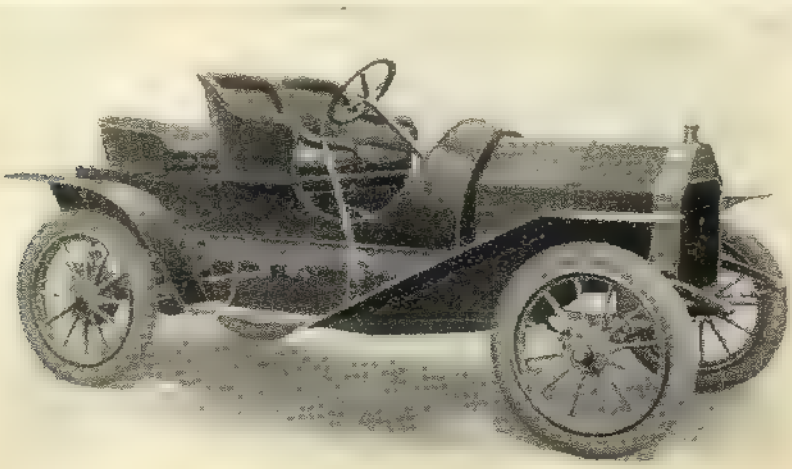


Fig. 2 Auburn 1908 Model K Roadster on chassis, Fig special body, fenders, with different gear ratio and special valve setting adapted for greater speed. Price $1 250.

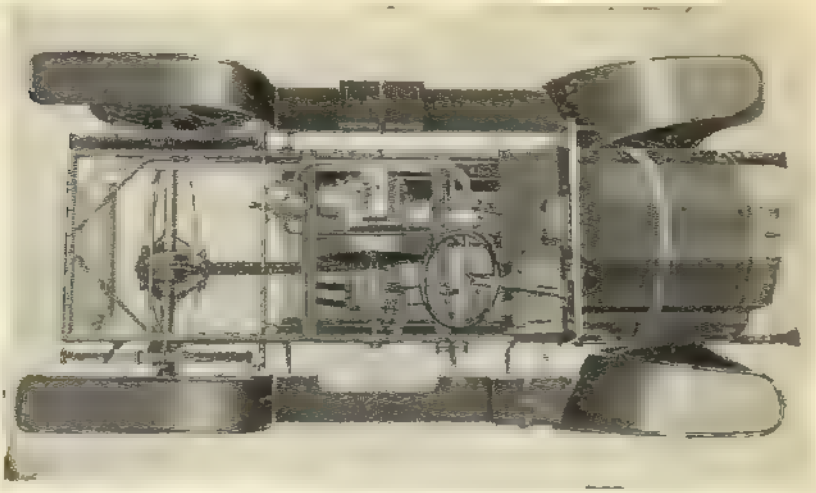


Fig. 3. Auburn Model G chassis, shows the arrangement of mechanism, the ease with which the transmission may be reached, the location of mechanical oiler, the foot pedal plate, battery and tool boxes. The pressed steel frame, with side members of channel section, 1½ in. x 4 in. by 3-16 in., with drop forged spring bar and yoke end, is especially adapted for hard use. The sheet metal work on fenders, bonnet, etc., is of neat design, and ample gauge metal

are used. Large power in proportion to weight, ease of control, accessibility and simplicity, are the features claimed for this car.

The model K roadster, Fig. 2, has the same general chassis specifications, but the gear ratio, and the valve setting of the engine are adopted for higher speeds, the weight being somewhat less. The frame is pressed steel of 3-16 inch stock, channel section 1½x4 inches. The large opposed motor is hung as shown in Fig. 3 from two channel section cross members, from which the bands of the planetary are also hung in such a way as to prevent dragging.

Lubrication is by a positive force feed oiler located on the top of the engine case and feeds lead to the top of each cylinder and to the crank case. A small tube carries oil from the top of the piston to the wrist pin bearing a chain in the sectional view of the motor, Fig. 4. The noteworthy features of the motor are, steam hammered crank, 1⅞ in. main bearings, and 1¾ in. wrists, bearings of nickel babbitt, piston and rings ground accurately to size, large piston pin hardened and ground, connecting rod upper end bushed with manganese bronze, large valves and stems, ample area to inlet and exhaust ports and piping, especially large hand hole on top of crank

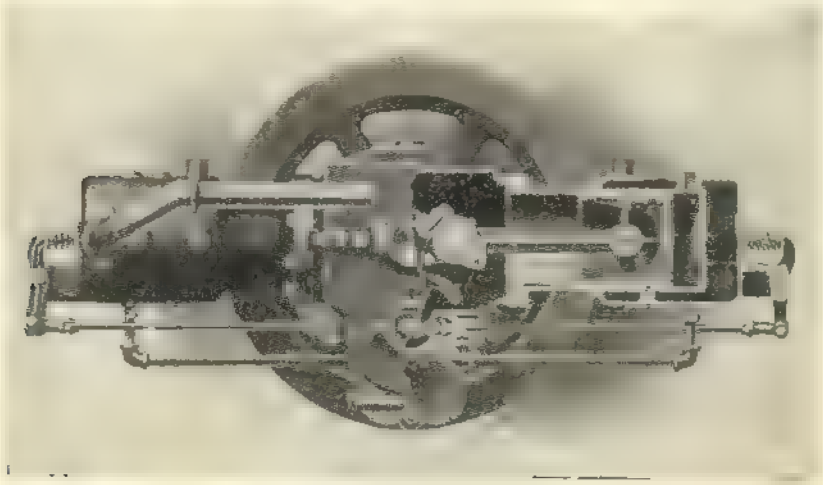


Fig. 4. Sectional View of 1908 Auburn Motor, showing arrangement of cam shaft below the main shaft, mechanical operation of valves and the special provision for oiling the wrist pin by means of the oil from the cylinder walls passing thru the tube in the piston wall.

case, cams accurately machined and set.

The connecting rod caps are split diagonally and hinged bringing the bolts in an accessible position. The cam shaft is at the lower side where it is copiously oiled, and at its outer end the timer is located Below is the circulating pump driven from the cam shaft gear. All valves are mechanically operated as shown and the exhaust escapes thru a long pipe to the muffler located crosswise at the rear of the frame.

The transmission of an improved planetary type with large gears of special Midvale Steel, with a low gear ratio or 2.4 to 1 make car especially fast, and accuracy in machining makes them run smoothly and without noise. All cars are thoroly tested before leaving factory and are ready for the road when received by purchaser.

The Enlarged Holsman Automobile Factory

The Holsman general offices occupy the entire south end of the fourth floor of the Monadnock Building, Chicago, which is said to be the largest office building in the world. The factory is claimed to be the largest producer in the world of the carriage or buggy type of automobiles. The new model No. 5 is just being completed and is herewith shown, Fig 1. This car has the same general power plant as the other cars, consisting of a two-cylinder opposed air-cooled motor driving the jack shaft by silent chains, as shown in Fig. 2 This is one of the simplest and lightest power transmissions used in automobiles, and is an important factor in making a light machine. The company believe light machines to be the most durable if properly constructed.

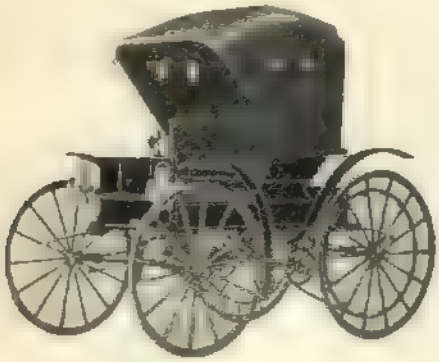


Fig. 1. The new Holsman Model 5 which conforms in a general way to the previous models but has a lighter piano box body.

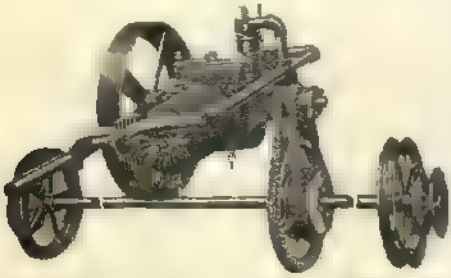


Fig. 2. Power plant of the Model No. 5 Holsman showing the silent chain drive to the jack shaft from the small sprocket on which special ropes drive thru sheaves on the rear wheel.

The machine shop is on the first floor. Every inch of space is utilized with iron working machinery and is a very busy place. Here the grinding and blacksmithing is done. Automatic saws are used for cutting up stock.

The motor assembling department is on the next floor, and here the assembling and fitting of the various parts of the motors is carried on, the main motor castings being mounted on special cast-iron stands, as shown in the photo, Fig. 4. In the vehicle assembling room, illustrated in Fig. 5, scores of men take the parts made in the machine shop and fit them together into the completed vehicle.

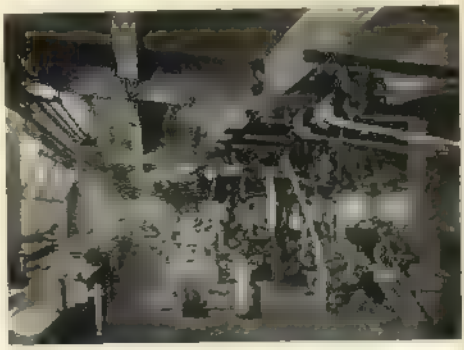


Fig. 3. An aisle in the Holsman machine shop.

Fig. 4. Motor assembling in the Holsman factory. Note the special cast stands for holding the motors while assembling.

differential stubs, already referred to, stand in approximate alignment with the centres of the rear wheel hubs. Two universal jointed driving shafts then connect the differential stubs with the rear wheel hubs.

Fig. 2. Rear view of Maxim-Goodridge electric showing the rear axle construction. The weight of the carriage is entirely supported by the dropped solid axle and not by the driving mechanism. The transmission is by worm and wheel driving thru universal joint shafts to the wheels. The driving mechanism is supported on the carriage springs. Electric side and tail lights are used. For special construction see text.

Up-and-down motion of the body is allowed for by the universal joints. For average loads these shafts are, approximately, in a straight line, and only on jounces and recoils is there any motion in the joints. The rear axle is offset to allow for the

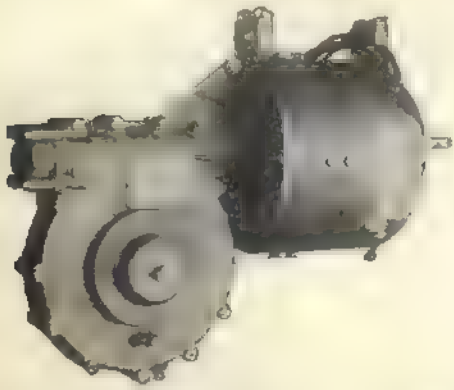


Fig. 3. The Motor and transmission of the Maxim Goodridge Electric forming a compact unit.

clearing of the universal joints, and except for this offset is an ordinary plain carriage axle. The rear wheels run on this axle, and driving dogs engage at the outer ends of the hubs, in the same manner as in conventional floating-axle design.

This carrying of the weight on the springs, instead of carrying it rigid and "dead" on the rear axle, makes the riding of the car very much better, and also permits the use of solid rubber tires instead of pneumatics. In this new car it would seem that the chances of success with solid tires would be greatly augmented. In riding in the car equipt with solid rubber tires the only difference noticed is that a slight

Fig. 4. Control levers of Maxim and Goodridge electric car, showing the controller handle mounted on the steering post below the steering lever in which position it does not take up any seat room as when placed at the side of the seat. Steering is from the left side

noise is heard when crossing street car tracks and similar sharp bumps

The riding qualities, however, are not at all different from what they would be with pneumatics, and aside from hearing, it is doubtful if one could tell what kind of tires were fitted. This is the result of the long springs, and the loading of all the weight where it is supported by the springs.

Another of the striking features of this unique vehicle is the way the batteries are carried. There are 30 cells of 11PV Exide, and all of them are placed under a front bonnet, the same as the power plant in a gasoline machine. The makers do not claim that this arrangement is followed because it is a feature of approved gasoline car design, but because it is the only way in which the weight can be carried equally upon both front and rear axles. In most types of electric cars, where batteries are carried at each end, the rear tires are required to carry some 60 per cent. of the total weight, and at the same time do all the driving. In the Maxim-Goodridge car the weight is just 35 lbs. more on the rear wheels when two passengers are in the seat, than is the weight on the front wheels. This is claimed to have an important effect on the softness of riding, and materially assists the tire problem.

CONTROL AND BRAKES.

The control of the car is also slightly original. Instead of the conventional lever

The New Maxim-Goodridge Electric Victoria-Phaeton

As has been well known in the trade for some months, Mr. Hiram Percy Maxim and Mr. T. W. Goodridge have been engaged in the production of a new electric car, which was to have entirely new features. This car has just made its appearance, and in several details it is a striking departure from conventional electric carriage designs.

The first thing which attracts one's attention in the construction is the surprising freedom from underneath mechanism. This effect is the result of using a worm and wheel drive in place of the customary pinion and gear and sprocket and chain, and in this respect the car marks a new departure in electric vehicles. All electrics on the market to-day use either pinion and gear drive, or a combination of gears and chains, which makes the reduction double.

WORM DRIVE

Much has been written lately upon the great advantages which the worm drive possesses for the transmission of a motor car, but the Maxim-Goodridge vehicle seems to be the first electric to break through the conventions and adopt it. The mounting of the worm drive is interesting, as will be seen from Fig. 2. The electric motor has its armature shaft prolonged and the worm mounted directly upon it. The worm wheel is supported in a separate housing which is divided vertically, and attached directly to the end of the motor. The stub shafts of the differential project through this housing, as shown. This drive is claimed to be the acme of simplicity, as the entire gear reduction of 10 to 1 is accomplished in one small housing, which is virtually a part of the motor. All chains, chain housings, strut rods, adjustments, gears, pinions and gear housings are at once avoided, and the entire transmission made enclosed, self-contained and absolutely silent.

The great objection in the minds of constructors to the worm and worm wheel drive has heretofore been the question of loss, due to the working action being entirely a sliding one instead of approximately a rolling one, as in the case of gears. The irreversible feature of the common worm has also been a hindrance to its favorable consideration. With the ordinary type of worm and wheel these objections unquestionably hold, and the drive would not be at all practical on a motor car, but the makers of this car claim that all these objections have been entirely overcome, as shown by the working of the car. It is claimed the car moves so easily that it will start of itself under the action of even a slight wind or down grade unless one of the two brakes are set.

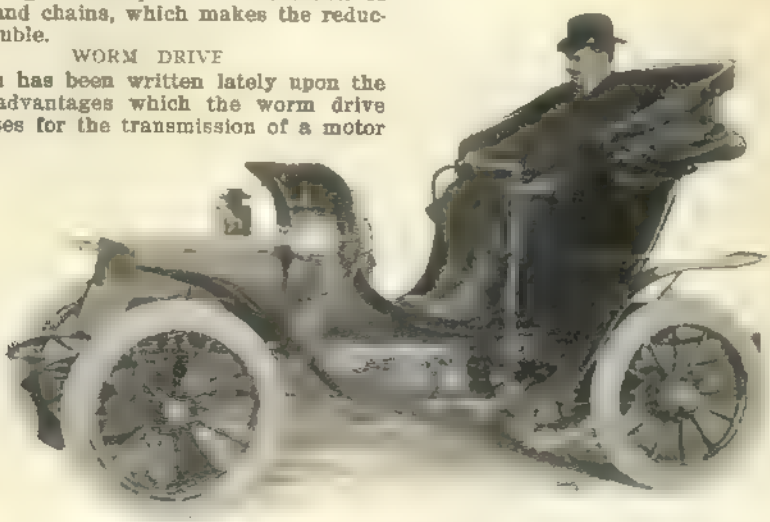


Fig. 1. The New Maxim-Goodridge Electric. Designer, H. P. Maxim driving. This new vehicle has many distinctive constructions. The control is at the left side. The entire rear axle construction is unique, a worm drive being employed. The under side of the car is noticeably free from mechanism and the entire power plant and batteries are carried on springs, there being no dead weight on the axles. The 30 cells of 11 P. V. Exide forming the battery are all carried under the hood at the front in a similar manner to the power plant of a gasoline car. Wheel base 84 inches, maximum speed 18 miles per hour, price $1800.00.

In driving, it is said, the tests of power consumption give positive proof of the low point to which the losses have been reduced, and this low friction means slow wear, and on this point the makers state that there is the best reason to believe that the life of the worm and wheel will be indefinite. It is completely housed in from dust and mud, runs continuously in oil, and requires absolutely no adjustment. The worm is made of steel and hardened, and the worm shaft and motor armature shaft run on D. W. F. ball bearings.

MOUNTING OF TRANSMISSION.

Another feature in the car of no less originality than the adoption of the worm drive, is the mounting of the motor and the transmission. These are carried on the chassis frame. They hang just so that the

projecting up through the side of the seat cushion, and using up, incidentally, some six inches of valuable space, the controller handle is mounted upon the steering post just below the steering lever, as shown in the cut. This handle is stated to be more convenient to operate than the conventional style side lever, and entirely avoids the mutilation of the cushion and the occasional dangerous catching of garments.

There are two brakes fitted, both controlled by foot levers projecting upwards through the floor. One brake operates upon the rear hubs and one upon the motor shaft. The wheel base is especially long, being 84 inches, which materially adds to the ease of riding. The diameter of all four wheels is 32 inches, and the tires used, in either solid or pneumatic, is 3½ inches.

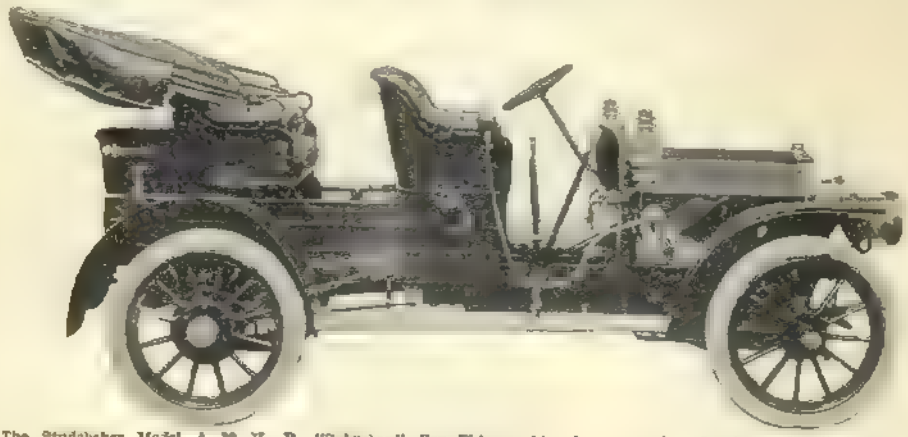
The motor is a General Electric, and the control is by means of the new style, uninterrupted torque, multiple-series controller, giving five speeds ahead and three reverse. The maximum speed is 18 miles per hour. The mileage on one charge of the battery, with either solid or pneumatic tires, is fifty on ordinary road surfaces, and, of course, much more on good city pavement. The weight of the car is 2,100 lbs. with the battery mentioned, and correspondingly less with smaller battery and simpler body. The chassis is entirely self-contained, and any type of body is supplied for especial purposes, although the standard is the Victoria-Phaeton shown in the illustration. The price is $1,800 00.

Japan is fast catching up to the Western world in civilization. In regard to the recognition of the supremacy of the automobile in traffic; among the regulations recently issued by the police department of Tokio appears the following: "Automobiles shall have precedence in the street to fire engines, post carriages and military, funeral or the processions of the people."

The Studebaker "Suburban"

There is quite a demand at the present time for a car that will be a happy medium between the runabout and the touring car, combining the smartness and the light weight of the former with the extra seating capacity of the latter.

To meet this demand the Studebaker Company has introduced its "Suburban." This is a thirty-horse power car with a chassis identical with that of Models A and H, but having seating capacity for four persons. The body of the car is considerably shorter than the body of a regular touring car of the same horse power, and the car presents an exceedingly smart appearance as shown by the accompanying photograph.



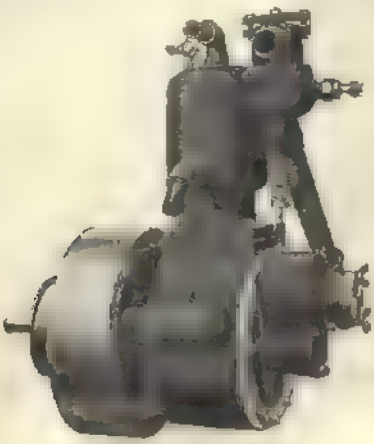
The Studebaker Model A 30 H. P. "Suburban" Car. This machine has a regular chassis as described on page 153, March, 1906, issue of the Journal, but the body is special.

The body is peculiar for an automobile, as it is an adaptation of the type of body used on light wagons and heavy road buggies. The rear seat is removable and carries a top. Under it is a very large carrying space and back of it a luggage hamper is fitted. The rig presents a very neat appearance.

The receivers' report covering their transactions for the Pope Mfg. Co. during the month of March shows a big increase in the cash balance. The total receipts for the month amounted to $179,614.49, which includes $166,756.58 from sales made by receivers. The cash disbursements for the month amounted to $114,429.11.

The decision made by Judge Buffington in the lower court in favor of the defendants in the case of the G & J Tire Co. vs. the Pennsylvania Rubber Co., which involved the G & J patents on the clincher type of tire, was upheld by the United States Circuit Court of Appeals for the Third Circuit. Judge Buffington's decision affected four patents, Nos. 454,115, 558,956, 466,565 and 523,314, none of which he ruled had been infringed.

ple carburetor with only two adjustments which are easily made and the thermo-syphon system of water circulation is used. The cylinder jackets are cast integral with the cylinders, and the water is circulated through a spiral tube radiator. The steering column is inclined and connects directly with the front axle, the steering wheel carrying the spark and throttle levers, same as on larger cars. The speed is varied by the manipulation of the spark and throttle levers and by allowing the



Engine of the Browniekar

drive belt to slip by reducing the pressure on the clutch pedal. The clutch pedal is arranged to be operated by the left foot, and when it is pushed forward it tightens the belts, driving the car forward. This arrangement insures against accidental slipping and is a factor for safety while the car is running, as connection between the engine and rear wheels can only be made while pressure is applied to this clutch pedal. As soon as the foot is removed the belts become slack and slip on the shaft, hence have no driving power. The brake pedal is operated by the right foot and when applied stops the shaft carrying the belts.

This little machine carries two passengers and the seat is adjustable to suit the size of the driver. Single tube pneumatic tires of 1½-inch cross-section are used. The estimated consumption of gasoline with this machine is 1 gallon for each 30 to 50 miles. It is also estimated that one gallon of cylinder oil will run this machine from 500 to 600 miles. Two quarts of lubricating oil and two pounds of grease will last a season. One set of four dry cells is calculated to provide sparking current for two or three months and the expense for repairs will, of course, depend upon the care of the boy or girl who operates the machine, but should not be great. Each Browniekar is guaranteed for three months against flaw or defect in material The machine weighs about three hundred pounds and sells for $150, including tools, tire pump, and a book of instructions, This instruction book contains diagrams showing the name and number of each part together with general information in regard to motor cars, their construction, principles of operation, repair, care, etc., and will be sold separately for 25c. per copy. The manufacturers have been experimenting with the car for some time and have thoroughly tried it out under varying conditions.

The Model B Auburn Car

The Auburn Automobile Company, Auburn, Indiana, have just placed another new model on the market for the coming season, to be known as Model B. This is a four cylinder, water cooled, sliding gear shaft driven car with a straight line type of body, luxuriously upholstered in black leather. The car is finished with a single or double rumble seat, or as a touring car with detachable tonneau, as shown in Fig. 1. The standard color is carmine with black mouldings. This car has a wheel base of 106 inches, 56 inch tread, 32 x 3½ inch Goodrich, quick detachable tires, and has a road clearance of 10 inches. The body is well protected by extra heavy pressed steel detachable fenders, with integral splash shields. The complete equipment consists of two side oil lamps, tail lamp, horn and tools, and the car weighs 1,900 pounds.

THE MOTOR

The four cylinder motor has a bore and stroke of 4 inches and is rated as 25-30 H. P. The cylinders and pistons are made from specially adapted semi steel, and are finished by grinding. The cylinders are cast separately. Each piston is fitted with four step jointed rings, and the piston pins of hardened and ground steel are of large diameter. The big end bearings of the connecting rod are bushed with the best bronze and babbitt. The valves are one-piece drop forgings, thoroughly annealed of the same size, and of course interchangeable. Phosphor bronze and babbitt bronze are used for the main bearings, and are accurately scraped to fit. The cam shaft with its cams are forged from a single piece of steel, case hardened and finished by grinding. The shaft is provided with a flange to which the half time gear is bolted. It runs entirely inside of the crank case, where it is fully protected and is certain of lubrication from the splash. The crank case is cast of special aluminum alloy in two parts, with a horizontal dividing line. The upper portion

contains all the main bearings, the lower section being an oil pan, and can be removed without disturbing the main bearings or crankshaft, or any of the connections of the motor. The crankshaft is a steel drop forging. The bearing surfaces, five of which are used, are also finished by grinding. The flywheel at the rear is bolted to a flange on the crankshaft. A carburetor of special design, of the usual float feed aspirating, nozzle type is used. For starting in cold weather, a small primary air intake shut-off is provided. The cooling system consists of a circulating pump, of cellular type, and is connected to a vertical tube radiator. The pump is gear driven, entirely bronze, except the shaft, which is of steel, and is operated directly by means of a self-centering, square jawed coupling to the end of the cam shaft. The belt driven cam is mounted on the front of the radiator. Jump spark ignition, current being obtained from a storage battery and dry cells is employed, and a four unit vibrating coil is arranged on the dash. A LaCoste type timer is driven from the cam shaft by enclosed spiral gears. The terminals to which the wires are attached, have a very slight motion when the spark is advanced or retarded

Fig. 1. Model B Auburn. Four cylinder 4x4, 25-30 H. P. motor. Sliding gear change speed and shaft drive. Wheel base, 106 in. Goodrich quick detachable tires 32x[illegible] at front and rear. 10-in clearance. Single or double rumble seat, or detachable tonneau. Weight, complete 1900 pounds.

The engine is lubricated by a self-contained oiling system within the crank case. Oil is pumped separately to four compartments of the crank case by a gear pump. An independent level is maintained in each of the compartments. Draining cocks are at the bottom of the crank case.

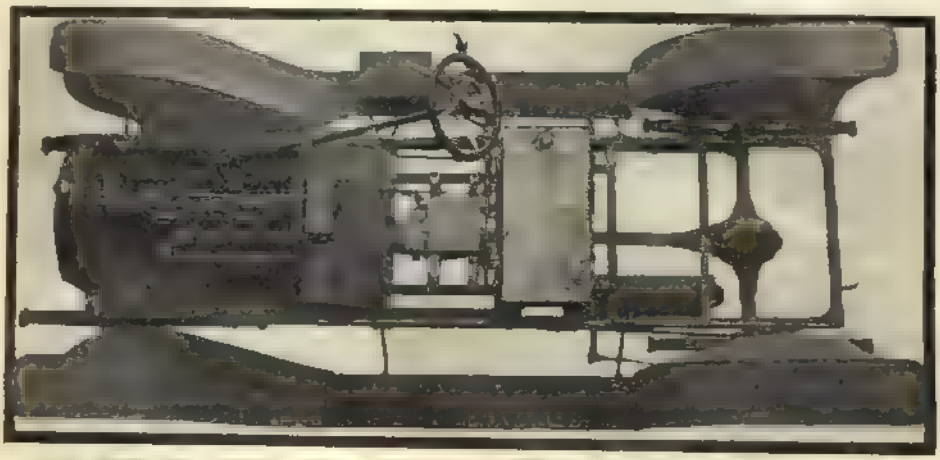


Fig. 2. Chassis plan of Model B Auburn, showing the arrangement of the motor. Mounting of the three speed and reverse change speed gear. Location of the 15 gallon, galvanized iron gasoline tank, and the webbed, mud guard construction

CHANGE SPEED GEAR.

A three speed selective type sliding gear is mounted on Hess-Bright ball bearings. The operating bars and yokes are of steel. The sliding gears are controlled by a single lever, located in the usual manner at the right of the car. At the same place, operating in the usual quadrant, is the emergency brake lever. The right foot lever controls external brakes placed on

the rear wheel drums. The left pedal controls the clutch only. The usual spark and throttle levers are located on the stationary sector on the steering wheel. The steering gear is of the worm and wheel type.

THE CLUTCH.

In the forward part of the change speed gear case is housed a metal multiple disc clutch. The power is delivered to the transmission shaft by a three-arm spider. The clutch is put into engagement by the usual spring, and very gradual engagement can be had following the usual action of this type of clutch. Besides the external rear hub brake, an internal expanding set of brakes are also provided. These internal brakes are protected by a disc, or dust shield. It is said that these brakes require no adjustment, as there is sufficient movement of the hand lever to make this unnecessary.

The frame is of cold rolled, pressed steel, and all rivets and bolt holes are drilled in jigs. The springs are semi-elliptic, at the front 40 inches in length, and at the rear full-elliptic springs 36 inches in length are used.

THE AXLES.

The rear axle is of the full floating type, the tubular axle housing carrying the car weight. The construction is liberally supplied with ball thrust and roller bearings. The front axle is an I section drop forging, in which the spring seats are forged integrally with the top flange. The axle is dropped at the center. The steering knuckles are of large size, and provided with bronze bushings. The steering arms are attached to the knuckles by means of a large, case hardened steel pin, so that there can be no chance for this important part becoming loose.

The 1909 Sterling Car

The Elkhart Motor Car Co., Elkhart, Ind., in designing Model "C" for 1909, arranged for three styles of equipment, a five or seven-passenger touring car and a roadster or baby tonneau. In offering this single model, special attention has been given to placing upon the market a car which will meet the most rigid demands of the purchaser. A car that performs equally well in the city or in the country.

Simplicity of construction and accessibility to all parts have been fundamental ideas, and with this has been united expert engineering and manufacturing skill, coupled with the highest grade and most thoroughly tested material. These important factors with the best machinery obtainable in a factory adapted to this particular work, complete the equipment for producing a reliable and up-to-date automobile. Much attention has also been given to ease, comfort and the elegance of the car. For those desiring a larger car the company has brought out a seven-passenger touring car, differing only from Model "C" in the wheel base and length of frame

The motor used in Model "C" is the Rutenber, four-cylinder vertical, 40 horsepower, water-cooled, four-cycle, four-cylinder. Cylinders cast separately, bore 4¾ in. x 5 in. No mechanical oiler is needed, as the oiling is completely taken care of by a self-contained oiler in the crank case. A single cam shaft with cams integral operates all the valves. The Rutenber motor has been on the market long enough to demonstrate its standing and has been described in these columns.

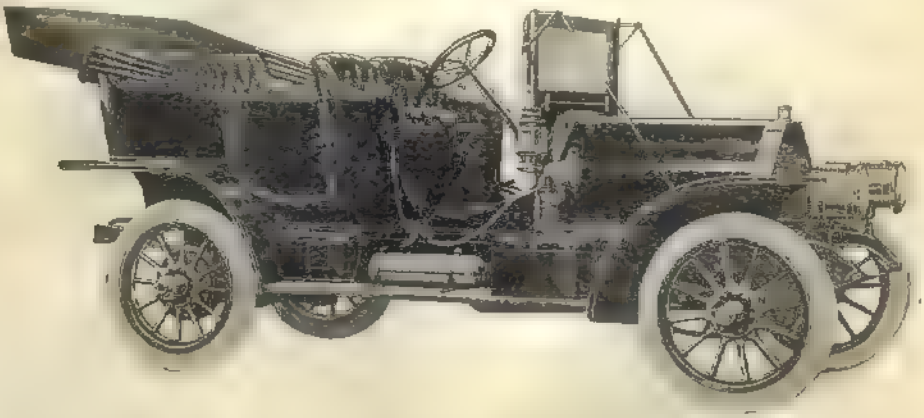


Fig. 1. 1909 Sterling Model C 1. Rutenber motor, three-speed sliding change gear, shaft drive rear axle and transmission forming a unit. Price fully equipped $3,000.00. F. o. b. Elkhart, Ind

THE CLUTCH.

Ignition is by dual system, with Fawn magneto and storage battery. The clutch is of the multiple disc pattern, containing

CATCHERS' MITTS.

THE A. J. REACH CO'S.

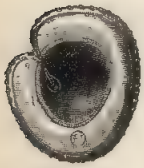
Face of Nos. B, BN, C, DN, 150 and 150N.

Back of Nos. B, BN, C, 150 and 150N.

Back of Nos. D and DN

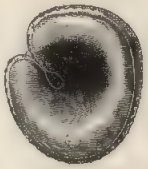
			Each
No.	B.	The "Reach" Laced, finest Brown Buckskin Face and Fingers, Strip and Back of the finest Pearl Colored Calfskin, Patent Laced Thumb and Patent Deep Pocket, Strap and Buckle at Wrist, Full Laced	$3.00
No.	BN.	The "Reach" Laced, all Black Leather, otherwise same as No. B.	3.00
No.	C.	The "Reach" Laced, finest Mouse Color Buckskin Face and Fingers, Brown Tan Leather Back, Brown Calf Strip, Patent Laced Thumb and Patent Deep Pocket, Strap and Buckle at Wrist, Full Laced	2.50
No.	D.	The "Reach" Laced, finest Drab Buckskin Face, Olive Leather Fingers, Back and Strip, Sole Leather Finger Protector, Patent Laced Thumb and Patent Deep Pocket, Strap and Buckle at Wrist, Full Laced	2.00
No.	DN.	The "Reach" Laced, all Black Leather, otherwise same as No. D.	2.00
No.	150.	The "Reach" Laced, Indian Tan Buck Face, Craven Fingers, Back and Strip, Patent Laced Thumb, Patent Deep Pocket, Strap and Buckle at Wrist, Full Laced	1.50
No.	150N.	The "Reach" Laced, all Black Leather, otherwise same as No. 150	1.50

One in a box.



Face of No. 125.

Back of No. 125.



Face of Nos. FP, FPN, GP and M.

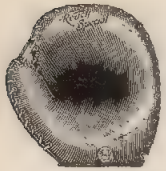
Face of Nos. 100, 75, 65, 65N, H, 26 and 26N.

			Each
No.	125.	The "Reach" Laced, fine Drab Deerskin Finish Leather Face and Fingers, Brown Deerskin Finish, Leather Back and Strip, Face reinforced with Brown Deerskin Finish Leather, Patent Laced Thumb and Patent Deep Pocket, Strap and Buckle at Wrist, Full Laced	$1.25
No.	FP.	The "Reach" Laced, Men's, fine Drab Deerskin Finish Leather Face and Fingers, Brown Tan Leather Back and Strip, Patent Laced Thumb, and Patent Deep Pocket, Strap and Buckle at Wrist	1.00
No.	FPN.	The "Reach" Laced, Men's, all Black Leather, otherwise same as No. FP	1.00
No.	100.	The "Reach" Men's, fine Brown Tan Leather Face, Back and Fingers, Craven Leather Strip, Patent Laced Thumb and Patent Deep Pocket, Large Size	.75
No.	75.	The "Reach" Men's, fine Buck Dressed Drab Leather Face and Back, Olive Tan Strip and Fingers, Patent Laced Thumb and Patent Deep Pocket	.50
No.	65.	The "Reach" Men's, fine Buck Dressed Drab Leather Face, Canvas Back, Olive Tan Leather Strip and Fingers, Patent Laced Thumb and Patent Deep Pocket	.50
No.	65N.	The "Reach" Men's, all Black, otherwise same as No. 65.	.50
No.	GP.	The "Reach" Laced, Youths' Size, fine Drab Deerskin Finish Leather Face and Fingers., Brown Deerskin Finish Leather Back and Strip, Patent Laced Thumb and Patent Deep Pocket	.50
No.	M.	The "Reach" Youths' Professional Laced, fine Buck Dressed Drab Leather Face and Back, Olive Tan Strip and Fingers, Inside Hump, Patent Laced Thumb and Patent Deep Pocket	.35
No.	H.	The "Reach" Youths', fine Buck Dressed Drab and Olive Tan Leather, Patent Laced Thumb and Patent Deep Pocket	.25
No.	26.	The "Reach" Youths', fine Buck Dressed Drab and Olive Tan Leather, Canvas Back, Patent Laced Thumb and Patent Deep Pocket	.25
No.	26N.	The "Reach" Youths', all Black otherwise same as No 26	.25

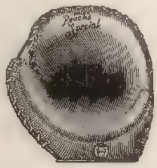
Nos. 125, FP, FPN, and 100, one in a box; Nos 75, 65, 65N and GP, three in a box; Nos. M, H, 26, and 26N, six in a box.

BASEMEN'S AND FIELDERS' MITTS.

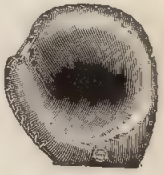
A. J. REACH CO'S. FIRST BASEMEN'S MITTS.



Nos. 3, 4S and 4P



Nos. 4 and 4N.



Nos. 4L, R, RN. 2R, 2RN, 3R and 3RN.

		Each
No. 3.	The "Reach Special" Laced, finest Drab Buckskin, Patent Laced Thumb, Padded with best Asbestos Felt, Strap and Buckle at wrist, Leather Laced, Special Inside Hump and Patent Deep Pocket	$4.00
No. 4.	The "Reach Special" Laced, finest French Calf, Padded with best Asbestos Felt, Strap and Buckle at wrist, Patent Laced Thumb, Leather Laced, Patent Hump and Patent Deep Pocket	4.00
No. 4S.	The "Reach Special" Laced, Finest French Calf, Padded with best Asbestos Felt, Leather Laced, Strap and Buckle at wrist, Patent Laced Thumb and Patent Deep Pocket, made up for Professionals who like a Mitt without an Outside Hump	4.00
No. 4P.	The "Reach Special" Laced, finest Black French Calf, Padded with best Asbestos Felt, Strap and Buckle at wrist, Patent Laced Thumb and Patent Deep Pocket, Leather Laced, made up for Professionals who like a Mitt without an Outside Hump	4.00
No. 4N.	The "Reach Special" Laced, finest Black French Calf, Padded with best Asbestos Felt, Strap and Buckle at wrist, Leather Laced, Patent Laced Thumb, Patent Hump and Patent Deep Pocket	4.00
No. 4L.	The "Reach" Laced, heavy Ecru Calfskin, Leather Laced, Padded with best Felt, Strap and Buckle at wrist, Patent Laced Thumb, Patent Inside Hump and Patent Deep Pocket	3.00
No. R.	The "Reach" Laced, heavy Brown Buck Face, Brown Tan Leather Back, Padded with best Felt, Strap and Buckle at wrist, Patent Laced Thumb, Patent Inside Hump and Patent Deep Pocket	2.00
No. RN.	The "Reach" Laced, all Black, otherwise same as No. R.	2.00
No. 2R.	The "Reach" Laced, fine Olive Tan Leather, Strap and Buckle at wrist, Padded with Felt, Patent Laced Thumb, Patent Inside Hump and Patent Deep Pocket	1.50
No. 2RN.	The "Reach" Laced, fine Black Tan Leather, otherwise same as No. 2R	1.50
No. 3R.	The "Reach" Laced, fine Craven Leather, well Padded Patent Laced Thumb, Patent Inside Hump and Patent Deep Pocket, Strap and Buckle at wrist	1.00
No 3RN.	The "Reach" Laced, fine Black Leather, otherwise same as No. 3R	1.00

One in a box

A. J. REACH CO.'S FIELDERS' MITTS.

Nos. CF, CN and 5.

Nos. 6, 8, 7, 7N, 7B, 7BN and 7C.

		Each
No. CF.	The "Reach Special," finest Brown French Calf, new Professional Pattern, Padded with best Asbestos Felt, Strap and Buckle at wrist, Patent Laced Thumb and Patent Deep Pocket	$3.00
No. CN.	The "Reach Special," finest Black French Calf, otherwise same as No. CF	3.00
No. 5.	The "Reach Special," finest Drab Buckskin, otherwise same as No. CF	2.50
No. 6.	The "Reach," Brown Buckskin, new Professional Pattern, Padded with best Asbestos Felt, Strap and Buckle at wrist, Patent Laced Thumb and Patent Deep Pocket	2.00
No. 8.	The "Reach," fine Olive Calfskin, otherwise same as No. 6	1.50
No. 7.	The "Reach," fine Drab Buck Face and Brown Leather Back, otherwise same as No. 6	1.00
No. 7N.	The "Reach" fine Black Buck face and Black Leather Back, otherwise same as No. 6	1.00
No. 7B.	The "Reach" Youths', Olive Tan Leather, well Padded, Patent Laced Thumb and Patent Deep Pocket	.50
No. 7BN.	The "Reach" Youths', Black Tan Leather, otherwise same as No. 7B	.50
No. 7C.	The "Reach" Boys', Buck Dressed Drab Leather, Patent Deep Pocket	.25

No. 7C, six in a box; balance, one in a box.

CATCHERS' MITTS.

THE A. J. REACH CO'S.

Face of Nos. 7A and 6A.

Back of Nos. 7A and 6A.

Face of Nos. 5A, 4A and 4B.

Face of Nos. 3A, 2A and 2B.

		Each
No. 7A.	**The "Reach Perfect", Black Calfskin,** finest quality calfskin face and strip made in one piece, making the wearing surface extra strong and preventing the possibility of tearing or ripping, fitted with a special hand sewed and hand formed pad of the best asbestos felt, forming a special Inside Hump, the Reach Patent Lace is used.....	$8.00
No. 6A.	**The "Reach Perfect", Brown Calfskin,** otherwise same as No 7A	8.00
No. 5A.	**The "Reach Special", New Patent Laced,** the face is made of the finest Drab Buckskin, the back strip and fingers of the finest brown French Calf, Double Stiffening on edge and back to protect fingers, Patent Laced Thumb and Patent Deep Pocket, all parts double stitched, Strap and Buckle at Wrist padded with highest quality Asbestos Felt	7.00
No. 4A.	**The "Reach Special" New Pattern Laced,** all brown French Calfskin, otherwise same as No. 5A.....	7.00
No. 4B.	**The "Reach Special" New Pattern Laced,** all black French Calfskin, otherwise same as No. 5A.....	7.00
No. 3A.	**The "Reach Special" League Laced,** finest quality Drab Buckskin with Russia Calf Strip, Double Stiffening on edge and back to protect fingers Patent Hump, Patent Laced Thumb and Patent Deep Pocket, Strap and Buckle at Wrist, all parts double stitched, padded with best Asbestos Felt	6.50
No. 2A.	**The "Reach Special" League,** finest Brown French Calf, Double Stiffening on edge and back to protect fingers, Patent Hump, Patent Laced Thumb and Patent Deep Pocket, Strap and Buckle at Wrist, padded with best Asbestos Felt, all parts double stitched	6.00
No. 2B.	**The "Reach Special" League,** finest Black French Calf, Double Stiffening on edge and back to protect fingers, Patent Hump, Patent Laced Thumb and Patent Deep Pocket, Strap and Buckle at Wrist, padded with best Asbestos Felt, all parts double stitched.....	6.00

One in a box

Face of Nos. A and BX.

Face of Nos. 30 and 30N

Back of No. BX.

Back of No. A, Nos. 30 and 30N same, Only Half Laced

		Each
No. A.	**The "Reach" Laced,** finest Pearl Colored Calfskin face and back, Olive Calf Strip and Fingers; edge stiffened to protect fingers, all parts double stitched, Patent Laced Thumb and Patent Deep Pocket, Strap and Buckle at Wrist, padded with a special hand sewed and hand formed pad of the finest Asbestos Felt...	$5.00
No. 30.	**The "Reach" Laced,** finest Drab Buck Face and Fingers, Brown Calf Strip and Back, all parts double stitched, Strap and Buckle at Wrist, Patent Inside Hump, Patent Laced Thumb and Patent Deep Pocket, padded with Asbestos Felt, half laced	4.00
No. 30N.	**The "Reach" Laced,** fine Black Calf, all parts double stitched, Strap and Buckle at Wrist, Patent Inside Hump, Patent Laced Thumb and Patent Deep Pocket, padded with Asbestos Felt, half laced.....	4.00
No. BX.	**The "Reach" Laced,** finest Brown Buckskin Face and Fingers, back and strip made of finest Pearl Colored Calfskin, Sole Leather Finger Protector, Patent Laced Thumb and Patent Deep Pocket, Strap and Buckle at Wrist, full laced	3.50

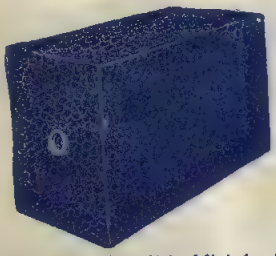
One in a box.

THE SHURE WINNER PRICE LIST

CAMERAS

These Goods are ever in big demand, more sold now than ever. Our variety is limited to the choice sellers suitable for the various dealers as well as for scheme trade and premium men x x x x x x x

Special Item for Premium Men.



This Illustration Shows Style of No.'s 1 and 2.

Snap Shot Jr. Camera No. 3 will take pictures 2½x2½ inches in size, clear and sharp to the corners of the plate. Covered with morroccoette and presents an attractive appearance and also can be carried conveniently in the outside coat pocket, making it a very handy article to take with on excursions, and vacation trips. It has a device by which you can take instantanious pictures in 1-10 to 1-25 of a second,, simply by lessening the tension. The lenses used are especially made for this camera by one of the best known opticians in the city. We furnish instruction books free and everything necessary to take, develop and finish a full size 2½x½ photograph.
Price, complete with outfit ..... .40
This camera with outfit packed, measures 6¾x4¼x3½ inches.

No. 4 Snap Shot Senior. 2½x3½ in. in size. Is put up in same style as above, but will produce a larger picture and it is therefore more desirable. We can recommend this camera. It is a good camera at a low price that will take instantaneous pictures. Developing and printing outfit, also instructions accompany every outfit. Price, complete ..... .65
The developing outfit consists of a box of dry plates, and sensitive paper, developing and toning chemical, and fixatives. Also complete instruction book.

THE FARMER CAMERA.

No. 5 Farmer Camera. Takes a picture 2½x3½ in. in size. Complete developing and printing outfit accompanies each Farmer Camera. Landscapes as well as interior and bust pictures can be taken.
Price complete with outfit ..... $ .60

THE CYCLONE JR. CAMERA.

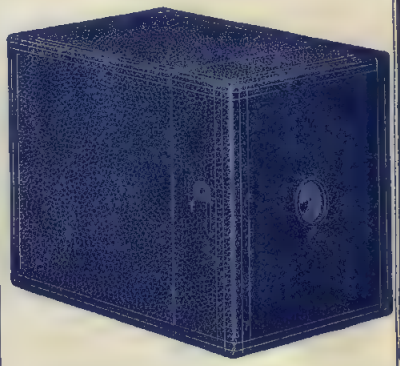
No. 6 Cyclone Jr. Camera. Will take picture 3½x3½ in. size. The Cyclone is the most popular on the market. Has an automatic shutter for time pictures. Two large square view finders. Two tripod sockets. Has superior lenses. It is universal in focus. Camera measures 5¼x7x4 in. It accommodates three double plate holders, with a capacity of 6 dry plates, covered with best black grain leather. Complete with one double plate holder and outfit. Each 2.00

THE WONDERFUL CAMERA.

No. 1 Wonderful Camera. 3½ in. long, 2¼ in. wide and 2½ in. deep. It will take a picture 2x2 in. in size. It is neatly covered with morroccoette and presents a very neat and attractive appearance. Can be conveniently carried in the outside coat pocket. It is the best low priced camera ever offered on the market. It has genuine lenses so that pictures can be taken either instantaneously or if desired, time exposure can be made. Easy to operate. Directions for using same go with it and any child or person who will follow them carefully can use it for taking pictures of persons, animals, buildings, landscapes, etc.
Camera with outfit, each ..... $ .24
In 100 lots, each ..... $ .22

No. 2 Wonderful Camera for taking pictures 2½x2½ same style as above with complete outfit and directions. Price, each ..... $ .28
In 100 lots, each ..... $ .26

SNAP SHOT CAMERA.

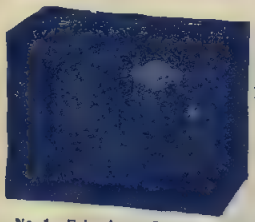


This Illustration Shows Style of No.'s 3 and 4.

No. 7 Cyclone Senior. The same as No. 6 for taking pictures 4x5 in. Extra fine quality of lenses is used in this camera. This camera is highly recommended.
Each $2.75

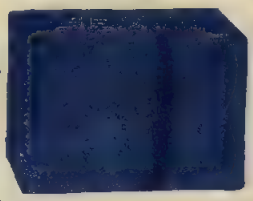
THE SHURE WINNER PRICE LIST

High Grade-Popular Price-Reliable Cameras



Baby Ansco Cameras

Low in price, simple to operate, and will produce perfect pictures. Adapted to 6 exposure daylight loading film



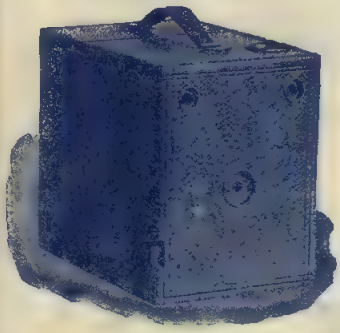
No. 1. Baby Ansco Camera Will take pictures 2¼ in by 2¼ in. A wonderfully compact little camera, well made, covered with imitation leather and with nickel trimmings. Lens is of the meniscus type producing sharply defined pictures. An ingenious shutter is provided for both time and instantaneous exposure. Is made with converging lines on top of the camera to give the scope of view.
Each .... .90. Dozen..... 10.50

No. 2. Baby Ansco Camera. Taking pictures, 2¼ in. by 3¼ in., otherwise same as above.
Each ..... 1.75 Dozen 20.00

Daylight Loading Films, 6 exposure, 2¼ in. by 2¼ in.
Each ..... .15 Dozen 1.50

Daylight Loading Films, same as above, 2¼ in. by 3¼ in.
Each ..... .18 Dozen 1.75

INGENTO JUNIOR CAMERAS.



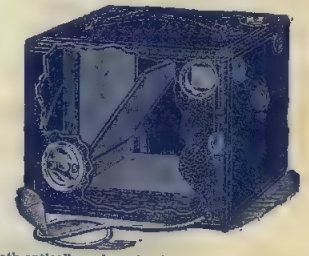
Ingento, Jr.

The Ingento Junior Camera makes a picture 3½ in. by 3½ in. square, and is generally used by amateurs and experts on excursions and outings. It is neat, compact and thoroughly equipped, covered with best seal grain leather with leather handle for carrying purpose. They carry three double plate holders with a capacity of 6 dry plates. Each camera is provided with view finders and two scopes for use with the tripod, equipped with automatic shutter for time, instantaneous and snap shot exposures, one button answering for both purposes. The lens is high grade meniscus combination of universal focus. Any one of these cameras the youngest amateur can manipulate with ease and percision. Ingento Junior Camera, complete with one holder, 3½ in. by 3½ in. Each.... 3.75

Ingento Senior Camera, same as above, size 4 in. by 5 in. Each 3.50

Ingento Plate holders. Each .... .50

INGENTO MAGAZINE CAMERA.



Both optically and mechanically of the highest standard quality. It is fitted with the best single achromatic meniscus lens, giving great definition and speed. The shutter is automatic, fitted with diaphragm and safety stop and operated by either bulb or finger release, also has ground glass finders. An exceptionally high grade camera at a low figure.

No. 21. Ingento Magazine Camera. Size 4 in. by 5 in. Each 8.00

THE FAVORITE "CYCLE" CAMERA

No. 12. Cycle Camera. Made of polished mahogany, brass trimmed, seal leather cover with strong actuated ground screen and rising front, also with perfect iris diaphragm for time and instantaneous exposure. The lens is a rapid meniscus achromatic. Price complete with carrying case and one double plate holder..... .....$6.50

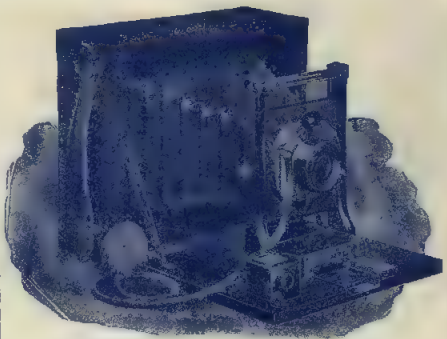
WHOLESALE **N. SHURE CO.** CHICAGO.

High Grade Ingento Cameras No's 1 and 2

These cameras are designed especially for an amateur that desires a camera that will produce good pictures but who prefers to invest only a nominal amount in his first equipment. They embody the most remarkable values that have ever been offered at the price. Made of well selected and seasoned mahogany with every corner dove-tailed, and covered with seal grain leather, the bed being attached to the case with a piano hinge and held by two automatic locking side supports, has highly polished brass lacquered metal trimmings, and red Russia leather bellows lined with gossamer cloth, rising and falling front, automatic press button clamp, reversible brass bound finder, Wollensak automatic shutter, single achromatic or rapid rectilinear lens. These cameras come complete including carrying case with handle and one double plate holder.

Ingento No. 1. Complete with achromatic lens, size 4 x 5 in.
Each $7.00

Same as above size 5 x 7 in.
Each 8.35



Ingento No. 2. Complete with rapid rectilinear lens.
Size 4x5 inches. Each 9.80
Same as above, size 5x7 inches.
Each 12.75
Extra double plate holders, size 4x5 inches.
Each ..... .60
Same as above, size 5x7 inches. Each ..... .80

The Ideal Developing and Printing Outfit

If you get the "Ideal" you get the best for the money. This outfit is practical. The very best results can be attained with it.

The developing and printing outfits contain everything that is required to finish either plates or films from start to completion. They contain first quality material, both in apparatus and chemicals, and are all guaranteed by us. The following is a list of what the outfits contain:

3 Japanned trays at 20c ..... .60
1 ruby candle lamp ..... .40
1 printing frame ..... .25
Developing powder to make 8 oz. solution ..... .10
Toning powder to make 8 oz. solution ..... .10
1 lb. Hypo ..... .05
1 4 oz Measuring glass ..... .15
1 dozen sensitized paper ..... .15
1 manual of instructions.
Price complete in cardboard box ..... .75

Adjustable Sliding Tripods

INGENTO SLIDING TRIPODS.

The legs of the sliding tripod are made in three pieces, the center piece sliding in between the outer ones forming the lower section. Made of thoroughly seasoned spruce, metal parts all made of brass polished on lacquered, strong and rigid, and the most practical tripod for general use.

No. 3. Tripod, for 4x5 in. and 5x7 inch cameras.
Each ..... .90

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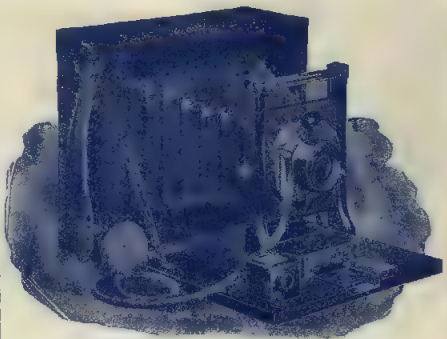

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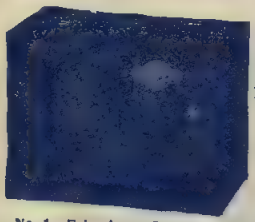

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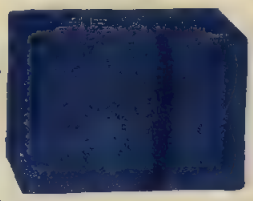

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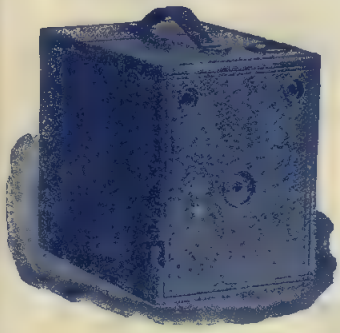

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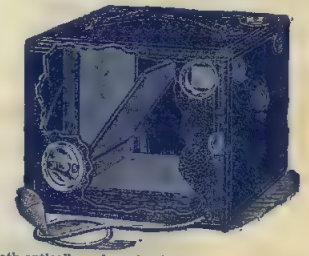

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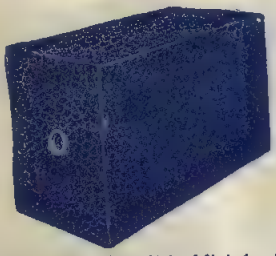

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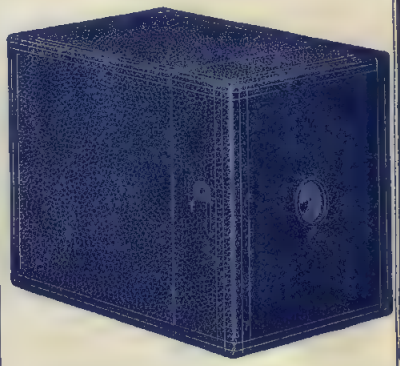
In 100 lots, each ..... $ .26

SNAP SHOT CAMERA.

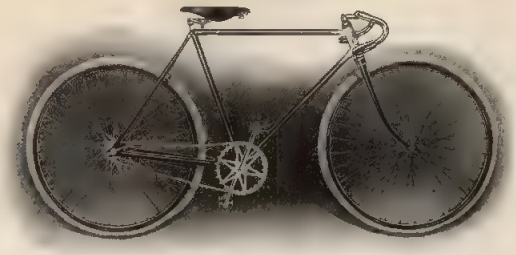


This Illustration Shows Style of No.'s 3 and 4.

No. 7 Cyclone Senior. The same as No. 6 for taking pictures 4x5 in. Extra fine quality of lenses is used in this camera. This camera is highly recommended.
Each $2.75

BICYCLES.

THE BEN HUR.



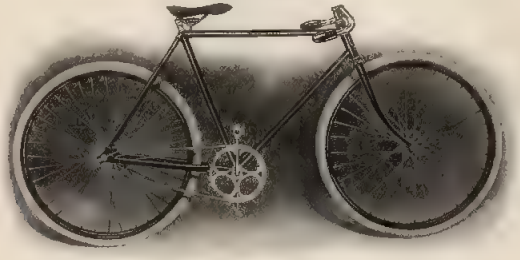
	Each
The Ben Hur, Model 79	$40.00

SPECIFICATIONS.

Frame—Main tubes, 1 in., 20 gauge, 20, 22 and 24 in.; head, 1⅜ in., 20 gauge, upper rear forks, ⅝ in. 20 gauge, formed, lower rear forks, ¾ in., 20 gauge, formed; drop 2½ in. Finish, plain black, with silver stripes or bright parts heavily nickeled.
Head Set—Semi-flush, turned from bar steel, for ¼ in. balls.
Fork—Orient three plate crown; nickeled top and edge and nickeled tips.
Rims—28x1½ in.; drilled 32 and 36 holes. Finish, plain black with double silver stripes.
Hubs, Front and Rear—New Departure.
Rear Sprocket—Nine-tooth.
Front Sprocket—Twenty-six tooth; star pattern.
Seat Posts—¾ in., forward L pattern; pinch bolt binder; seat post finishing ring
Chain—No. 45 Indianapolis.
Cranks—One piece, half diamond, 7 in.
Tires—Ben Hur single tube, 1½ in.
Saddles—Star B, with coil spring.
Pedals—Star Rat Trap.
Handle Bar—Adjustable, with stitched leather grips.

New Departure, Corbin or Morrow Coaster $5.00 extra.

THE PEERLESS.



	Each
The Peerless, Model 77	$30.00

SPECIFICATIONS.

Frame—Main tubes, 1 in., 18 gauge 20, 22 and 24 in., head, 1⅜ in 20 gauge upper rear forks, ⅝ in., 20 gauge, oval pattern; lower rear forks, ¾ in., 20 gauge, slightly formed; drop 2½ in Finish blue, gilt striped; bright parts heavily nickeled.
Head Set—Flush, for ¼ in. balls.
Fork—Flat crown; ⅞ in. 18 gauge forksides, reinforced. Finish, full enameled sides and nickeled crown.
Rims—28x1½ in.; combination; drilled 32 and 36 holes. Finish, plain blue to match frame.
Hubs, Front and Rear—New style, reduced centers.
Rear Sprocket—Nine-tooth
Front Sprocket—Twenty-six tooth.
Seat Posts—⅞ in.; ⅝ in. round toprail; forward L; internal expander
Chain—Blue side links, finely finished B block straw colored centers.
Cranks—One piece, oval pattern, 7 in., lug drive.
Tires—Peerless guaranteed single tube, 1½ in.
Saddle—Triumph A, with truss spring.
Pedals—Standard.
Handle Bar—Adjustable, with nickeled-end leather grips.

New Departure, Corbin or Morrow Coasters $5.00 extra.

BICYCLES.

THE PEERLESS LADIES.

The Peerless Ladies' Model 78.... Each $30.00

Frame—Main tubes, double curve, 1 in., 18 gauge, 20 and 22 in.; seat post mast, 1 in., 17 gauge; head 1⅜ in., 20 gauge; upper rear forks, ⅝ in., 20 gauge, oval pattern, lower rear forks, ¾ in., 20 gauge, slightly formed; drop 2½ in. Finish, blue with gilt stripe; bright parts heavily nickeled.
Head Set—Flush, for ⅛ in. balls.
Fork—No. 12 semi-arch pattern crown, ⅞ in., 18 gauge forksides, reinforced. Finish, full enameled sides and nickeled crown.
Rims—28x1½ in.; combination, drilled 32 and 36 holes. Finish, plain blue to match frame.
Hubs, Front and Rear—New style, reduced centers
Rear Sprocket—Ten-tooth
Front Sprocket—Twenty-four tooth.
Seat Posts—13/16 in.; ⅝ in. toprail; forward L; internal expander.
Chain—Blue side links; finely finished B block straw colored centers.
Cranks—One piece, oval pattern, 6½ in.; lug drive.
Chain Guard—Wood, enameled blue, with single gold stripe.
Mud Guard—Wood, enameled blue, lacing, blue No. 80.
Tires—Peerless guaranteed single tube, 1½ in.
Saddles—No. 14B, with coil spring.
Pedals—Standard ladies' rubber
Handle Bar—Adjustable, with nickeled-end leather grips.

New Departure, Corbin or Morrow Coasters $5.00 extra.

THE PEERLESS JUVENILE.

Frame—Main tubes, 1 in., 20 gauge; 24 and 26 in. wheels have 14½, 16 and 18 in. frames, respectively; flush joints; head 1⅜ in., 20 gauge; upper rear forks, ⅝ in., 20 gauge, oval, lower rear forks, ¾ in., 20 gauge, slightly formed. Finish, blue with gilt stripe, bright parts heavily nickeled.
Head Set—Flush, for ⅛ in. balls
Fork—No. 12 semi-arch pattern crown, ⅞ in., 18 gauge, forksides reinforced. Finish, full enameled sides and crown
Rims—20, 24 and 26 in.; drilled 28 holes; finish A-18
Hubs, Front and Rear—Stamped reduced center; new type.
Rear Sprocket—Eight-tooth, not perforated.
Front Sprocket—Twenty-tooth Crescent Juvenile pattern
Seat Posts—13/16 in.; ⅝ in. round toprail; forward L, internal expander.
Chain—Blue side links; finely finished straw colored centers
Cranks—One piece; oval; 5½ in. for 24 and 26 in., 4½ in. for 20 in.; lug drive
Tires—Unguaranteed single tube.
Saddle—Juvenile
Pedals—Standard rubber

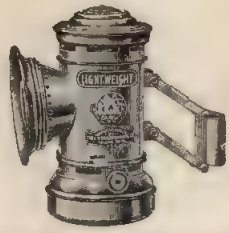
Girls' Model 76 Each $20 00

Frame—Main tubes, 1 in., 20 gauge; 24 and 26 in. wheels have 14½, 16 and 18 in. frames, respectively, flush joints; head 1⅜ in., 20 gauge; upper rear forks, ⅝ in., 20 gauge, oval; lower rear forks, ¾ in., 20 gauge, slightly formed. Finish, blue with gilt stripe, bright parts heavily nickeled.
Head Set—Flush, for ⅛ in. balls.
Fork—No. 12 semi-arch pattern crown; ⅞ in., 18 gauge; forksides reinforced. Finish, full enameled sides and crown.
Rims—20, 24, 26 in.; drilled 28 holes; finish A-18.
Hubs, Front and Rear—Stamped reduced center; new type
Rear Sprocket—Eight-tooth, not perforated.
Front Sprocket—20-tooth Crescent Juvenile pattern.
Seat Posts—13/16 in., ⅝ in. round toprail; forward L; internal expander.
Chain—Blue side links, straw colored centers.
Cranks—One piece; oval, 5½ in., for 24 and 26 in., 4½ in., for 20 in., lug drive.
Tires—Unguaranteed single tube.
Saddle—Juvenile
Pedals—Standard rubber

Boys' Model 75 Each $20 00

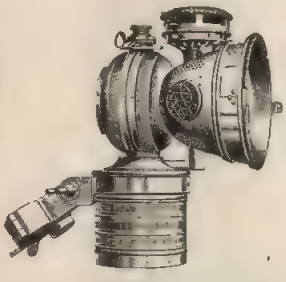
BICYCLE LAMPS.

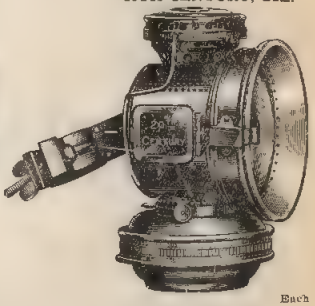
COLUMBIA AUTOMATIC, GAS. LIGHT WEIGHT, OIL. THE SOLAR, OIL.



	Each
Columbia Automatic Gas Lamps, height 5½ in.; weight, 18 oz. The Water Feed takes care of itself. Lights at once, turns down or out at once. Uses one-half the carbide necessary for the larger lamps, **Nickel Plated**	$3 00
Light Weight Oil Lamps, Nickel Plated	1 00
Solar Oil Lamps, Nickel Plated	1 50

THE SOLAR, GAS. 20TH CENTURY, GAS. 20TH CENTURY, OIL.

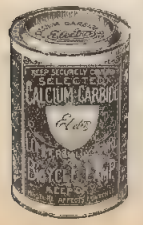




	Each
The Solar Gas Lamps, made entirely of Special Brass, is reduced in weight and has improved Carbide Pot, with Rolled Thread, New Protected Rubber Washer and Valve, New Bracket Attachment, absolutely perfect and by far the best lamp ever made, **Nickel Plated**	$3 00
20th Century Gas Lamps, strong and serviceable, and every lamp is tested before leaving the factory, burns six hours, any Lump Carbide, comparisons in every respect invited with the Gas Lamps of all countries, **Nickel Plated**	3.00
20th Century Oil Lamps, Nickel Plated	2.00

CARBIDE, TIPS AND BRACKETS.

CALCIUM CARBIDE. LAVA TIPS. LAMP BRACKETS.



No. 5

	Each
Calcium Carbide, 2 lb. cans	$0.25
Calcium Carbide, 10 lb. cans	1.00
Lava Tips, for Solar, Twentieth Century and other Gas Lamps	.15
No. 5. Lamp Brackets, 1¼, 1⅝ and 1½ in.	.20

THE SHURE WINNER PRICE LIST

DUEBER-HAMPDEN COMPLETE WATCHES

THESE PRICES ARE SUBJECT TO DEALERS' SPECIAL DISCOUNT

THE BEST WATCHES IN THE WORLD

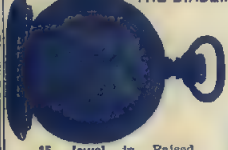
3-000 Complete Watches

"THE MOLLY STARK." 7 Jewel Nickel, finish. with bright flat Screws; Sunk Sec. Pl. Hard Enam. Dial; Spade Hds., Reg. Hampden Main Spring; Breg. Hair-Spr.

Fitted complete in cases as below, namely:

No. 6150. Cased in a Dueber 18-Kt. Solid Gold Htg. Case; Pl., Bassine, or Jurgensen E. T. or Engr....22.50
No. 6151. 14-Kt. Solid Gold, same as above.. 18.50
No. 6152. 14-Kt. Gold Filled, same as above.. 12.50

"THE DIADEM" 15 JEWEL WATCH.



15 Jewel in Raised Gold Sett.; Solid Nickel Movement; up. and low. Cent. Bear. bushed with Anti-Fric. Metal; Breg. Hair Spring; Sunk Sec Glass Enam. Dial, Blue Spade Hands, finely Damask, and finely finished throughout. "The Best" Hampden Main Spring.

Fitted complete in cases as below, namely

No. 6153. Cased in a Dueber 18-Kt. Solid Gold Htg. Case; Pl., Bassine, or Jurgensen E. T. or Engr....25.50
No. 6154. 14-Kt. Solid Gold, same as above.....21.00
No. 6155. 14-Kt. Gold Filled, same as above.....14.50

"THE 400:"

The Best, The Smallest, The Handsomest

LADIES' AMERICAN WATCH

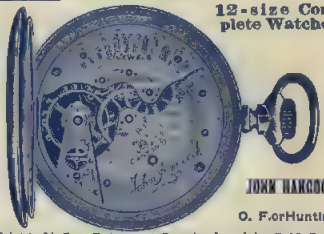
17 Jewel in Raised Gold Sett.; Solid Nickel; all bearings not jeweled bushed with Anti-Friction Metal, Breguet Hair Spring. Microm. Reg.; Sunk Second or Fancy Dial, finely Damask, and eleg. finished throughout.

Fitted complete in cases as below, namely:

No. 6156. Cased in a Dueber 18-Kt. Solid Gold Htg. Case; Pl. Bassine, or Juergensen E. T. or Engr.. 28.00
No. 6157. 14-Kt. Solid Gold, same as above.....24.00
No. 6158. 14-Kt. Gold Filled, same as above.....18.00

Note.—Plain polished or engine turned gold filled cases are 50 cents less. Open face gold filled cases are 25 cents less than Hunting. Open face gold cases same as Hunting

12-size Complete Watches



JOHN HANCOCK

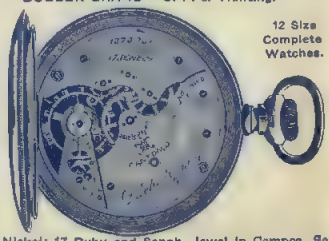
O. F.orHunting.

Nickl, 21 fine Ruby and Sapph. Jewel in Gold Sett., Escap Cap Jew., Comp Bal., adj to Temp., Isochr. and Pos., Breg Hair-Sp.; New Model Micr. Reg.; Bright Bev. Head Scr., Pat Cent Pin, finely polish. Steel work; Double Sunk Glass Enam. Dial; elegant. finish Nick. Plates with Gold letter.; the best finish throughout. Very closely timed

No. 6159. In 14-Kt Solid Gold, Pl Bassine or E. T., Juergensen Style, Dueber Case complete, Htg...47.00
No. 6160. In 14-Kt. Solid Gold, same as above O F 47.00
No. 6161. In 14-Kt. Gold Filled, same as above, Htg. 30.00

DUEBER GRAND O. F. or Hunting.

12 Size Complete Watches.



Nickel; 17 Ruby and Sapph. Jewel in Compos. Sett.; Adj.; Breg Hair-Sp.; Pat. Reg.; Bright Flat Screws; eleg. Engr. and Damask, with Gold letter.; Arab. or Rom. Dial, Red Mark. Fig.

No. 6162. In 14-Kt. Solid Gold, Pl. Bassine or E. T., Juergensen Style, Dueber Case, complete, Htg... 34.00
No. 6163. In 14-Kt. Solid Gold, same as above, O F. 32.00
No. 6164. In 14-Kt. Gold Filled, same as above, Htg. 17.00

Note. Engr., Diamond Sett. and Ornament on Gold Cases will be charged for extra. Engr. 14-Kt. Gold Filled 12 Size Case, extra, 50 cents.

O. F complete 12 size filled case watches 50 cents list, less than Htg

WHOLESALE **N. SHURE CO.** CHICAGO.

THE SHURE WINNER PRICE LIST

Dueber - Hampden Complete Watches

All Prices quoted are List, subject to Dealers' Discount.

12 Size Complete Watches

GENERAL STARK

O. F. or Htg.

Nickel 15 Ruby Jewel in Compos. Sett., Breguet Hairspring, Mean Time Screws, Patent Reg., Bright Flat Screws, Engr. and Damask., Gold Lettering, Arabic or Roman Dial, Red Marginal Figure.

No. 6165. In 14k Solid Gold, Plain Basine or E. T., Juergensen Style, Dueber Case, complete.....Htg. 32.00
No. 6166. In 14k Solid Gold, same as above .....O. F. 30.00
No. 6167. In 14k Gold Filled, same as above .....Htg. 14.50

16-SIZE WM. McKINLEY, 21 JEWEL WATCH

Nickel, 21 extra fine Ruby and Sapphire Jewels in Solid Gold Settings, Center Staff jeweled with the finest of Sapphires, Escapement Cap jeweled, Conical Pivots, Microm. Regul., Compensation Bal., Gold Screws, Breguet Hairspring, Mean Time Screws, acurately adjusted to Temp., Isochr. and Position, Patent Center Pinion, Bevel Head Screws, highly polished Steel Work, Polished Center Wheel, Fine Double Sunk Dial, Elegantly Engr. and Damask., Gold Lettering.

	Htg	O. F.
No. 6168. Cased in 14k 25 year gold filled case.....	31.50	30.25
No. 6169. Cased in 10k 20 year gold filled case.....	29.00	28.25

WM. McKINLEY, 17 JEWEL WATCH

Nickel, 17 Ruby and Sapphire Jewel in Comp. Sett., Adj., Breg. H.-Spr., Pat. Reg., Mean Time Scr., Bright Flat Screws, Eleg Engr. and Dam., Gold Lett., Arab. or Rom Dial, Red Marg. Fig

No. 6170. Cased in 14k 25 year gold filled case.....	21.00	18.75
No. 6171. Cased in 10k 20 year gold filled case.....	18.50	16.00

No. 109. COMPLETE WATCH

Nickel, 15 Jewel in Comp. Sett., Breguet Hairspring, Sec. Sunk Dial, Pat. Center Pin, Microm. Reg., Bright Flat Screws.

No. 6172. Cased in 14k 25 year gold filled case.....	16.25	14.00
No. 6173. Cased in 10k 20 year gold filled case.....	13.75	11.25

CHAMPION WATCH

Gilt, 7 Jewels, Pat. Cent. Pin., Bright Flat Screws, Sunk Sec. Dial, Spade Hands, Reg. "Hampden" Main Spring.

No. 6174. Cased in 14k 25 year gold filled case.....	13.75	11.50
No. 6175. Cased in 10k 20 year gold filled case.....	11.25	8.75

THE NEW RAILWAY WATCH

(Open Face Only)

Is a Fine Watch for Railroad Men.

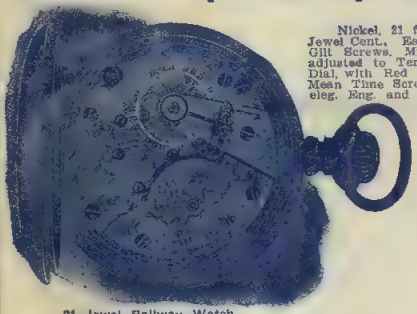
18 SIZE NEW MODEL—FINE TRAIN.

Nickel, 23 Fine Ruby and Sapphire Jewel in Gold Sett., Bar Arbor and Sent. Staff Jewel with Fine Sapphire, Escapement Cap Jewel, Conic. Piv., Patent Microm. Reg., Comp. Bal., Gold Screws, Breguet Hairspring, Mean Time Screws, New Mod. Stud., adj. to Temp., Isochr. and Pos., Pat. Cent. Pin., Polished Steel Work, Double Sunk Glass Enam. Dial, Fleur de Lis Hands, finely Damask. and finished throughout, Gold Letering.

No. 6176. Cased in 14k 35 year gold filled screw cases	34.75
No. 6177. Cased in 3-oz. Sterling Silver screw case	32.00
No. 6178. Cased in Railway Style nickel case	29.00

Dueber-Hampden Complete Watches

18 Size, H't'g or O. F.
Prices quoted are List, subject to Dealers' Discount

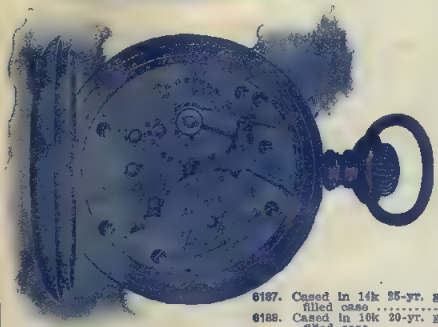


21 Jewel Railway Watch.

SPECIAL RAILWAY WATCH.

Nickel, 21 fine Ruby and Sapphire Jewel in Solid Gold Sett., Jewel Cent., Escapement Cap Jewel, Conic. Piv., Bev. Head, Gilt Screws, Micr. Reg., Gold Screws, Comp. Bal., accurately adjusted to Temp., Isochr. and Pos., Double Sunk Glass Enam. Dial, with Red Marg. Fig., Breguet Hairspring, New Mod. Stud, Mean Time Screws, Steel Work highly polished, Pat. Cent. Pin., eleg. Eng. and Damask., fine Escapement, Fleur de Lis Hands, and first quality "Hampden" Main Spring.

No.		Htg.	O. F.
6179.	Cased in 25-yr. 14k gold filled case	34.50	31.75
6180.	Cased in 20-yr. 10k gold filled case	32.25	29.50



21 Jewel John Hancock Watch.

JOHN HANCOCK WATCH.

New Model. Fine Train.

Nickel, 21 fine Ruby and Sapphire Jewel in Gold Sett., Escapement Cap Jewel, Comp. Bal., Gilt Screws, adjusted to Temp., Isochr. and Pos., Breguet Hairspring, Mean Time Screws, New Mod. Stud, Pat. Microm. Reg., Bright Bev. Head Screws, Pat. Cent. Pin., Polished Steel Work, Double Sunk Glass Enam. Dial, finely Damask. and finished throughout, Gold Lettering.

No.		Htg.	O. F.
6181.	Cased in 14k 25-yr. gold filled case	32.50	29.75
6182.	Cased in 10k 20-yr. gold filled case	30.25	27.50
6183.	Cased in nickel case	24.00	23.65

DUEBER GRAND WATCH.

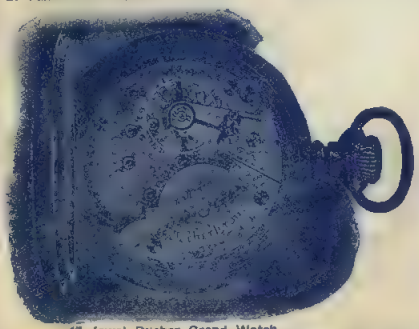
Nickel, 17 Jewel in Compos. Sett., Adj., Breguet Hairspring, Microm. Reg., Compens. Bal., Bright Flat Screws, eleg. Eng. and Damask., Arab. or Rom. Dial, Red Marg. Fig., Moon Hands.

No.		Htg.	O. F.
6184.	Cased in 14k 25-yr. gold filled case	19.50	16.75
6185.	Cased in 10k 20-yr. gold filled case	17.25	14.50
6186.	Cased in sterling silver case	14.75	14.30

DUEBER WATCH CO. WATCH.

Nickel, 15 Jewel in Compos. Sett., Breguet Hairspring, Patent Reg., Sunk Second Dial, Roman Fig., Moon Hands, Patent Cent. Pin., Bright Flat Screws, eleg. Engraved and Damask., and the Reg. "Hampden" Main Spring.

		Htg.	O. F.
6187.	Cased in 14k 25-yr. gold filled case	15.25	12.50
6188.	Cased in 10k 20-yr. gold filled case	13.00	10.25
6189.	Cased in sterling silver case	10.50	10.05

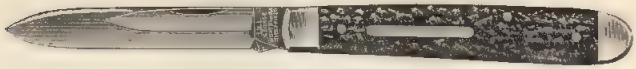


17 Jewel Dueber Grand Watch.

15 Jewel Dueber Watch Co. Watch.

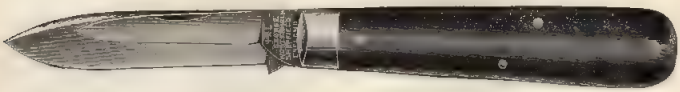
POCKET KNIVES.

GEORGE WOSTENHOLM AND SONS.



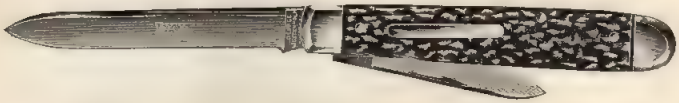
No. 17003. I-XL, Stag Handle, Two Blades, 3⅝ in., Brass Lined ..... Per dozen $15.00

No. 2018. I-XL, Bone Handle, Two Blades, 3⅝ in., Brass Lined ..... Per dozen $14.00



No. 7002. I-XL, Ebony Handle, Two Blades, 3½ in. ..... Per dozen $12.00

No. 7388. I-XL, Stag Handle, Two Blades, 3⅝ in., Iron Lined ..... Per dozen $21.00



No. 17004. I-XL, Stag Handle, Two Blades, 3⅝ in., Brass Lined ..... Per dozen $20.00

No. 2010. I-XL, Ebony Handle, Two Blades, 3⅝ in., Iron Lined ..... Per dozen $15 00

No. 12044G. I-XL, Ebony Handle, Two Blades, 3⅝ in., Brass Lined ..... Per dozen $15.00

All above, half dozen in a box.

POCKET KNIVES.

GEORGE WOSTENHOLM AND SONS.

Per dozen

No. 1B. **I-XL, Barlow,** One Blade 3½ in., Iron Lined . . . . . $ 4.00

Per dozen

No. 2B. **I-XL, Barlow,** Two Blades, 3⅝ in., Iron Lined . . $ 6.00

Per dozen

No. 8. **I-XL, Oxidized Metal Handle,** Two Blades, 2¾ in $17.00

Per dozen

No. 2222P. **I-XL, Pearl Handle,** Two Blades, 3¾ in., Brass Lined $30.00
No. 2222S. **I-XL, Stag Handle,** Two Blades, 2¾ in., Brass Lined 18.00

Per dozen

No. 2118. **I-XL, Pearl Handle,** Two Blades, 3 in., Brass Lined $24.00

Per dozen

No. 6. **I-XL, Bronze Metal Handle,** Two Blades, 3¼ in. $18.00

Per dozen

No. 17095. **I-XL, Stag Handle,** Two Blades, 3¼ in., Brass Lined $15.00

All above, half dozen in a box.

POCKET KNIVES.

GEORGE WOSTENHOLM AND SONS.

Per dozen

No. 16584. **I-XL, Ivory Handle,** Two Blades, 3¾ in., Brass Lined $15 00

Per dozen

No. 17009. **I-XL, Stag Handle,** Two Blades, 3¾ in., Brass Lined $15.00

Per dozen

No. 16148. **I-XL, Ebony Handle,** Two Blades, 4 in., Brass Lined $15.00

Per dozen

No. 2120. **I-XL, Stag Handle,** Three Blades, 3 in., Brass Lined $24 00

Per dozen

No. 2143. **I-XL, Stag Handle,** Three Blades, 3 in., Brass Lined $24 00
No. 2197. **I-XL, Pearl Handle,** Three Blades, 3 in., Brass Lined 30 00

Per dozen

No. 2054. **I-XL, Stag Handle,** Three Blades, 3¾ in., Brass Lined $25.00

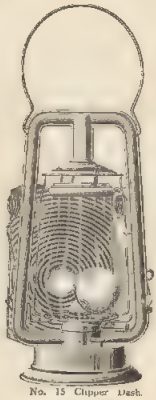
All above, half dozen in a box.

LANTERNS.

HAM'S CADET, POLICE AND DASH.

Cadet

Police



No. 15 Clipper Dash.

No. 17 Cold Blast Dash.

		Per dozen
Cadet.	**All Brass, with Wick, Can light without removing Globe**	$ 4.00
Police or Dark Lanterns, Japanned, 3 in. Bull's Eye		6.00
No. 15.	**Clipper Dash, Japanned, No. 0 Bull's Eye Globe, 1 in. Wick**	13.50
No. 17.	**Cold Blast Dash, Japanned, No. 0 Plain Globe, 1 in. Wick**	20.50

Cadet, six dozen; police, two dozen; Nos 15 and 17, half dozen in a case.

HAM'S RAILROAD AND CONDUCTOR'S.

No. 39 Railroad.

Nos. 39 and 039 Conductors's.

Nos. 3 and 03 Conductor's.

		Per dozen
No. 39.	**Railroad, Tin Bottom,** Double Wire Guards, No. 1 Ratchet Burner, ⅝ in. Wick for Lard Oil	$13 00
No. 39.	**Railroad, Tin Bottom,** Double Wire Guard, No. 1 Convex Burner, ⅝ in Wick for Kerosene Oil	13.00
No. 39.	**Conductor's, Brass,** Finely Finished, Screw Oil Cup, for Lard Oil, ⅝ in Ratchet Burner, Hand Made Flint Glass Globe	36.00
No. 039.	**Conductor's, Nickel Plated Brass,** otherwise same as No. 39	42 00
No. 3.	**Conductor's, Brass,** Finely Finished, Screw Oil Cup, for Lard Oil, ⅝ in. Ratchet Burner, Hand Made Flint Glass Globe	60.00
No. 03.	**Conductor's, Nickel Plated Brass,** otherwise same as No. 3	72.00

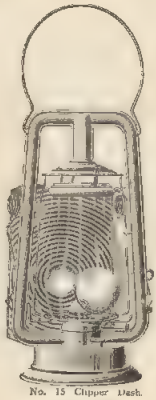
Half dozen in a case

LANTERNS.

HAM'S CADET, POLICE AND DASH.

Cadet

Police



No. 15 Clipper Dash.

No. 17 Cold Blast Dash.

		Per dozen
Cadet.	**All Brass, with Wick, Can light without removing Globe**	$ 4.00
Police or Dark Lanterns, Japanned, 3 in. Bull's Eye		6.00
No. 15.	**Clipper Dash, Japanned, No. 0 Bull's Eye Globe, 1 in. Wick**	13.50
No. 17.	**Cold Blast Dash, Japanned, No. 0 Plain Globe, 1 in. Wick**	20.50

Cadet, six dozen; police, two dozen; Nos 15 and 17, half dozen in a case.

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No. 39.	**Conductor's, Brass,** Finely Finished, Screw Oil Cup, for Lard Oil, ⅝ in Ratchet Burner, Hand Made Flint Glass Globe	36.00
No. 039.	**Conductor's, Nickel Plated Brass,** otherwise same as No. 39	42 00
No. 3.	**Conductor's, Brass,** Finely Finished, Screw Oil Cup, for Lard Oil, ⅝ in. Ratchet Burner, Hand Made Flint Glass Globe	60.00
No. 03.	**Conductor's, Nickel Plated Brass,** otherwise same as No. 3	72.00

Half dozen in a case

ICE TOOLS

DAIRYMEN'S ICE PLOWS "Ice King" with 5 Teeth, Non-Adjustable 22-inch Swing Guide and Patent Clearing Tooth

No.	315	316	317
Size, inches	8	10	12
Price, each	$37 50	$37 50	$43 75

Without guide, deduct ... 6.75

With adjustable swing guide for cutting 14, 16, 18, 20 and 22 inch cakes, add extra.....$3 75

Every plow is provided with a wooden case to protect the teeth

The solid steel teeth are not polished, as in the icemen's plows, but are left blue

ICEMEN'S PLOWS Without Guides

No.	375	377	379	381	382
Size, in.	8	10	12	14	16
No. teeth.	7	6	5	5	5
Price, each	$60 00	66 25	72 50	81 25	87 50

ICEMEN'S PLOWS With Swing Guide Attached

No.	386	388	389	391	392
Size, in.	7	8	9	10	12
No. teeth	7	7	7	6	5
Price, each	$65 75	70 75	74 50	77.00	85 25

Every plow is provided with wooden case to protect teeth

No. 409. 6-IN. HAND PLOW OR MARKER

Weight of 6-in. Hand Plow, with case, 18 lbs.

Cut does not show long handle with wooden D handle. ..... Price $21.00

Used in making the first line on the ice field and in finishing out the ends of the grooves made by the horse plows

No. 412. PLOW ROPES

These are made of the best manila rope [illegible] in diameter with a thimble spliced in one end [illegible] the other end by which it is fastened to the plow

Price, each... $1 75

ICE SAWS

No. 422. 5 ft. best quality with reversible wrought iron handle. Price.....each $6 25
With painted case. Price. ..... " 6 90

No. 642. OVAL IRON HANDLE 30-IN. HAND SAW

Blade 30 inches long.... . . . .each, $1 65

ICE HOOKS

Boston Pattern

Length handles, feet..	4	4½	5	6
Price, per dozen....	$11.50	12 00	12.50	13 25

4½ foot hooks are standard and are always sent unless otherwise ordered

Ice Hooks, for Floating, N. Y. Pattern

Length handles, feet..	10	12	14	16	18
Price, per dozen....	$16.25	17 50	20 00	22 50	25 00

4½ foot hooks weigh 40 lbs per dozen.
Longer lengths add about 6 lbs. per foot.

CAR ICE HOOKS

No 522. 4 foot.....per dozen, $15.00

Pusher strap iron extends 18 inches down the handle to protect the wood

CAR ICING HOOKS

No 524. 4½ foot.....per dozen, $13.75

Used for breaking up ice cakes when icing cars, they have a 5½ inch square, steel splitting iron in place of pusher iron.

CANT ICE HOOKS

No 525 4 foot.....per dozen, $20.00

Used by packers to "edge up" ice when packing into houses

No. 443. RING HANDLE SPLITTING FORK

No 443. Heavy, weight 18 lbs., length 4 feet 10½ inches, tines (outside) 14 inches long. each.....$5.65

Same with knob handle No. 440. .....each, 5.35

Used in breaking off floats or large sheets from the ice field, also for splitting floats into strips when grooving is insufficiently deep or partially frozen

For Other Ice Bars, Tools, Etc., Ask for Separate Catalog

ICE TOOLS

ICE TONGS

No. 540. Solid Handle Boston Tongs

No. 542. Extra Hollow Handle Boston Tongs

Points ¾ inch wide

No. 540. Solid handle tongs. Have solid, drop-forged, steel swell handles and bows and best tool steel points.

Size, inches.....	13	14½	16½	26
Weight, dozen	34	39	46	62
Price, per dozen....	$18 75	20.00	21 25	23 75

No. 542. Extra hollow handle tongs Have gas pipe handles of special quality, ⅞ diam. Best tool steel is used in the bows and points entire.

Size, inches	13	14½	16½
Weight, dozen	33	37	44
Price, per dozen.....	$23.75	25 00	26 25

No. 544. Car or corner tongs, 12 in., used in carring ice by men who grasp each cake at opposite corners.

Per dozen. $25.00

No. 550. CINCINNATI CHAIN TONGS (Two-link)

Black. Thin points.

Size, inches..	10	12	15
Weight, doz..	20	24	24
Price, doz...	$15.00	15.75	16.25

No. 550½. Kansas City pattern, same prices as above but somewhat heavier.

No. 561. EASTERN EDGING-UP TONGS

Narrow points. Weight, 4 lbs. With solid handles.

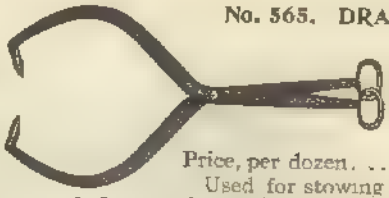
26 inch.....dozen, $22.50

Spans the entire cake when lying flat

Used by packers who edge up their ice when stowing in the house.

Ice Gin Blocks, for hoisting, will be found under "Blocks"

No. 565. DRAG TONGS

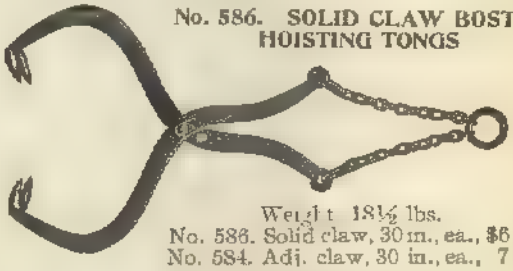


Points ¾ inch wide, weight 7 lbs.

Price, per dozen. $26 25

Used for stowing ice in the winter and for moving it in the houses in summer. Made with long handles

No. 586. SOLID CLAW BOSTON HOISTING TONGS



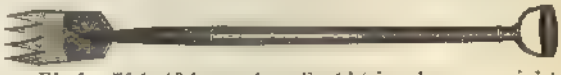
Weight 18½ lbs.

No. 586. Solid claw, 30 in., ea., $6.25

No. 584. Adj. claw, 30 in., ea., 7.50

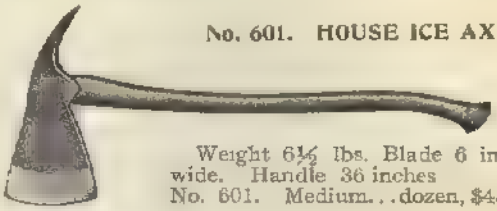
Used for hoisting ice directly from the water to the platform or for lowering ice from houses, etc.

No. 652. D HANDLE 4-POINT ICE SHAVER



Blade 7½x4¾ in., handle 1½ in. diam., weight 4¼ lbs. Price, each..... $2.85

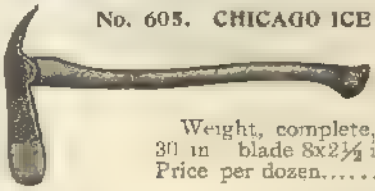
No. 601. HOUSE ICE AX



Weight 6½ lbs. Blade 6 inches wide. Handle 36 inches

No. 601. Medium...dozen, $45.00

No. 605. CHICAGO ICE AX



Weight, complete, 4 lbs.; handle 30 in blade 8x2½ in., round edge. Price per dozen.....$25.00

No 607 New York pattern with square edge blade 7½x3 in., handle 30 inches, weight 4½ lbs Price, per dozen..... .....$25.00

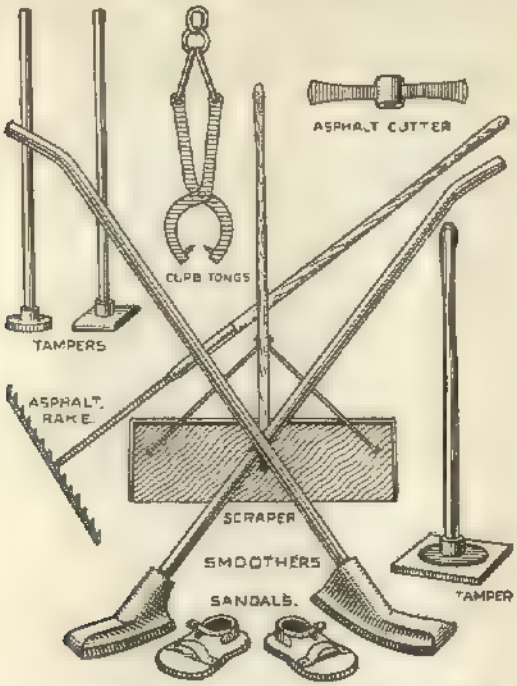
No 615. Heavy southern ax ....per dozen, $22 50

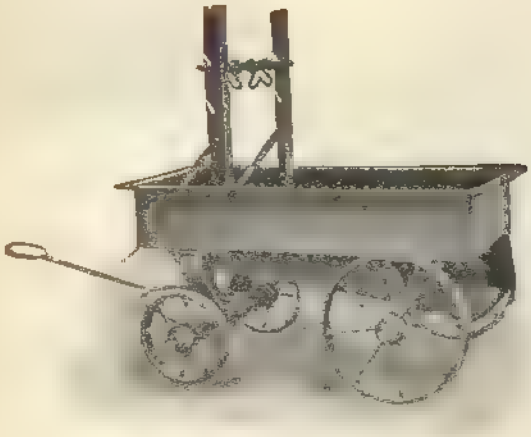
Round edge blade 2½ in. wide, weight 3½ lbs. 22 inch handle.

No. 621. Medium southern hatchet, round edge, 2¼ inch blade, handle 18 inches weight 2½ lbs. Per dozen... .. .. $20 00

For Other Ice Handling Tools, Ask for Separate Catalog

ASPHALT TOOLS





Fire Wagon

Asphalt or Tar Kettle

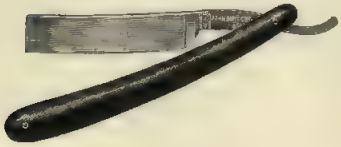
Asphalt Cutters with Handles ...	$15.00 Doz.
Curb Tongs with 9-inch Jaw.....	5.00 Each
Tampers—See list and styles on other pages.	
Scrapers	$8.00 Each
Smoothers, 14 x7½ inches.....	4.75 "
" 10½x6½ "	4.25 "
Asphalt Sandals	3.00 Pair

Asphalt Rakes, 18-inch head, 4-inch Tines.....	$ 15.00 Doz.
Fire Wagons.....	175.00 Each
Asphalt Kettles on Wheels 100 gallon	185.00
Tar Kettles—Same as above, but with riveted bottoms and 1½ inch draw-off cock	200.00 "

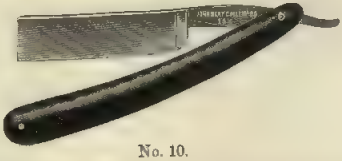
For Wheelbarrows, Shovels, Picks, etc., see other pages

RAZORS.

THE CELEBRATED JOHN BERT'S BARBER RAZOR. FULLY WARRANTED.

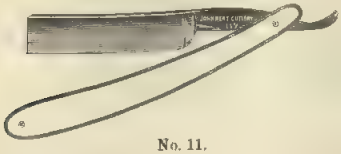


No. 9.

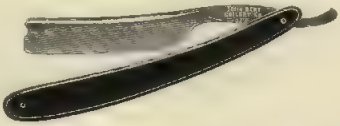


No. 10.

No. 9, ½ inch, Three-quarters Hollow Ground, Square Point, Rubber Handle, Full Polished, File Tang, Per doz., $18 00
" 9, " " " " " " " " " " " " " 18 00
" 10, " Full " " " " " " " Ivory Tipped, " 20 00
" 10, " " " " " " " " " " " " " 20 00
" 10, " " " " " " " " " " " " " 20 00

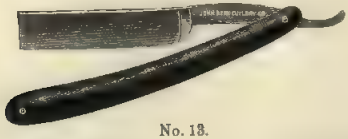


No. 11.



No. 12.

No. 11, ⅝ in., Full Hollow Ground, Sq. Point, Ivory Handle, Expressly for Barbers' use, Full Polished, Per doz., $36 00
" 11, " " " " " " " " " " " " " " 36 00
" 11, " " " " " " " " " " " " " " 36 00
" 11, " " " " " " " " " " " " " " 36 00
" 12, " Hollow Point, Hollow Ground, Swaged Back, Full Crocus Finished, Ivory Tipped, Rubber Handle, " 24 00

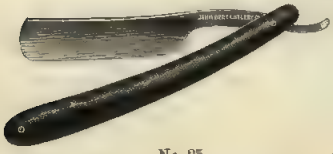


No. 13.

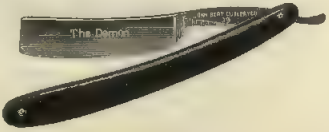
No. 16.

No. 13, ⅝ inch, Extra Hollow Ground, Square Point, File Cut Tang, Rubber Handle, Ivory Tipped, Full Crocus Finished. - - - - - Per dozen, $36 00
" 16, ½ in., Extra Hollow Ground, Sq. Point, Full Crocus Etched, "Our Best Razor," Rubber Handle. " 36 00
" 16, ⅝ in., Extra Hollow Ground, Square Point, Full Crocus Etched, "Our Best Razor," Rubber Handle, File Cut Thumb and Gimped Back Tang, - - - " 36 00

One-half dozen in a box.



No. 25.



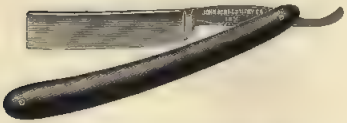
No. 39.

No. 25, ⅝ inch, Extra Hollow Ground, Round P[illegible] ber Handle, - - Per dozen, $24 00
" 39, The Demon, ⅝ inch, Full Hollow [illegible] Polished, Curved Blade, giving a draw cut, Square Point, File Cut Tang - - - - " 36 00

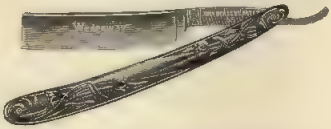
MORLEY-MURPHY HARDWARE COMPANY, GREEN BAY, WIS.

RAZORS.

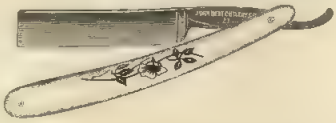
THE CELEBRATED JOHN BERT'S BARBER RAZORS. FULLY WARRANTED.



No. **55**, $\frac{5}{8}$ inch, Extra Hollow Ground, Square Point, Double Shoulder, Full Crocus Polished, File Cut Tang, Rubber Handle, Per dozen, $21 00

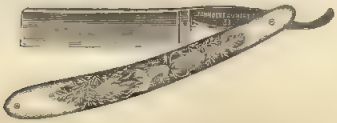


No. **65**, $\frac{5}{8}$ inch, Extra Hollow Ground, Square Point, Full Crocus Finish, Etched in Gold, Wedgeway, Double Shoulder, Fancy Gimped Tang, Fancy Black Rubber Handle, - - - Per dozen, $36 00



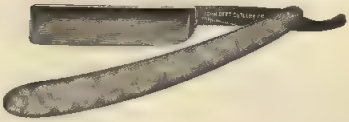
No. **27**, Pelham, $\frac{3}{4}$ Hollow Ground, Square Point, Inlaid White Celluloid Handle, Crocus Polished, - Per dozen, $24 00

No. **29**, Fancy Back, $\frac{3}{4}$ Hollow Ground, Square Point, Brown Celluloid Handle, Crocus Polished, - Per dozen, $24 00



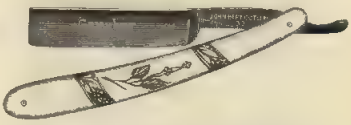
No **31**, Same as No. 29, only Plain Back, Brown Celluloid Handle, - Per dozen, $24 00

No. **60**, $\frac{5}{8}$ inch, Full Hollow Ground, Square Point, Crocus Finish, Double Shoulder, Ornamental File Cut Tang, Flat Beveled Edge Black Handle, - Per dozen, $36 00



Pearl, $\frac{5}{8}$ inch, Hollow Ground, Selected Pearl Handle, Fancy Tang, Crocus Polished, Per dozen, $60 00

No. **28**, $\frac{3}{4}$ Hollow Ground, Square Point, Cream Celluloid Handle. Crocus Polished, Per dozen, $24 00



No. **30**, Cavalier, $\frac{3}{4}$ Hollow Ground, Square Point, Celluloid Handle, Crocus Polished, Per dozen, $24 00

No. **32**, Same as No. 29, only Plain Back, White and Blue Celluloid Handle, Per dozen, $24 00

RAZORS.

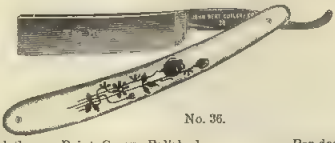
THE CELEBRATED JOHN BERT RAZORS. FULLY WARRANTED.

No. 33

No 34.

No. **33**, The Austin, Fancy Celluloid Handle, ¾ Hollow Ground, Square Point, Crocus Polished, - Per dozen, $24 00
" **34**, Corbett, Fancy Mermaid Handle, ¾ " " " " " " - - " 24 00

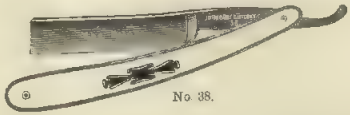
No. 35.



No. 36.

No. **35**, Pere Marquette, Fancy Inlaid Celluloid Handle, ¾ Hollow Ground, Square Point, Crocus Polished, Per dozen, $24 00
" **36**, Hindoo, " " " " ¾ " " " " " " " 24 00

No. 37.



No. 38.

No. **37**, Aladdin, Fancy Celluloid Brown Handle, ¾ Hollow Ground, Square Point, - - - Per dozen, $24 00
" **38**, Pilot, " Inlaid Celluloid " ¾ " " " " Crocus Finish, " 24 00

JOHN BERT ASSORTMENT RAZORS.

No. **1860**, Case of Six Razors, - - Per case, $12 00
" **1860**, " " Twelve " - - - " 24 00

Above Razors are assorted from Nos. 27 to 38. In Plush Cases.

Razor Cases only, for 6 Razors, - - Each, $ 1 00
" " " " 12 " - - " 1 50

MORLEY-MURPHY HARDWARE COMPANY, GREEN BAY, WIS.

PLAYING CARDS—Continued

UNITED STATES PLAYING CARD CO.'S—Continued

Showing some of the newer backs of 606 Congress Playing Cards

No 606-84

No. 606-92

No. 606-93

No. 606-95

No. 606-96

No 606-96

No 606-96

No 606-97

No 606-98

No. 606-99

No. 606-98

No. 606-96

No. 606-97

No. 606-98

No 606-99

No. 606-100

No 606-101

No. 606-102

No. 606-103

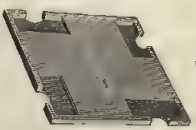
No. 606-104

No. 606-105

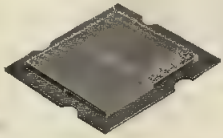
DUPLICATE WHIST TRAYS

We carry in stock only such numbers as are marked thus *. Others supplied on short notice direct from factory. Furnished with 25 score cards and book of rules only

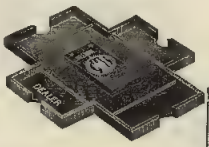
PAINE'S


The favorite among clubs and whist players

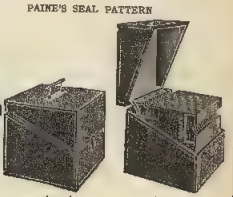
U. S.


Rubber cushioned

KALAMAZOO



PAINE'S SEAL PATTERN


Closed Open

Paine's No.	U. S. No.	Kalamazoo No.		Each
*P 8	*U 8	*K 8	Eight tray set	$8 40
*P12	*U12	*K12	Twelve-tray set	8 00
*P16	*U16	*K16	Sixteen tray "	9 60
*P20	*U20	*K20	Twenty tray "	11 20
*P24	*U24	*K24	Twenty four tray set	12 80
P28	U28	K28	Twenty-eight tray "	15 20
P32	U32	K32	Thirty two tray	17 60
P36	U36	K36	Thirty-six tray "	20 00
P40	U40	K40	Forty tray set	22 40
P44	U44	K44	Forty four tray set	24 80
P48	U48	K48	Forty eight tray set	27 20
P52	U52	K52	Fifty two tray set	29 60
P56	U56	K56	Fifty six tray	32 00
P60	U60	K60	Sixty tray set	34 40
P64	U64	K64	Sixty four tray set	36 80

An extra fine, strong and durable tray. Soft leather pattern in slate or maroon. Pick up in handsome seal pattern cases, with nickel-plated handles, name plate, clasp, etc. Has all the superior points of the regular Paine tray

No.		Each
*S 8	Eight tray set	$12 00
*S12	Twelve-tray set	16 00
*S16	Sixteen-tray "	19 20
*S20	Twenty tray "	24 00
*S24	Twenty four tray set	28 80
S28	Twenty eight tray "	33 60
S32	Thirty-two tray "	38 40
S36	Thirty-six tray "	43 20
S40	Forty tray set	48 00
S44	Forty four tray set	52 80
S48	Forty eight tray "	57 60
S52	Fifty two tray	62 40
S56	Fifty six tray "	67 20
S60	Sixty-tray set	72 00
S64	Sixty four tray set	76 80

HOWELL'S SYSTEM OF DUPLICATE WHIST FOR PAIRS

This system comprises a set of large cards, which, when laid on the table, indicate position and progression of each player for every deal. Each set is complete and is put up in a neat box, with pamphlet of instructions.

	Per set		Per set
4 pairs set	.30 90	17 or 18 pair set	$1 80
5 or 6 pair set	90	19 " 20 "	1 68
7 " 8 "	90	21 " 22 "	2 16
9 " 10 "	1 08	23 " 24 "	2 34
11 " 12 "	1 26	25 " 26 "	2 52
13 " 14 "	1 44	27 " 28 "	2 70
15 " 16 "	1 62	29 " 30 "	2 88

Combination Prices

	Per set
One set, complete each from 4 to 14 pairs, inclusive	$5 86
One set, complete, each from 4 to 22 pairs, inclusive	11 72
One set, complete, each from 4 to 30 pairs, inclusive	21 60

UNITED STATES PLAYING CARD CO.'S PLAYING CARDS

No.		Per doz.
999	Steamboat, four corners two-color plaids, star, bruce calico patterns	$1 50
101	Tigers, extra quality, new two-color plaids, star, bruce, calico patterns	2 16
515	Picket, high finish red and blue backs, fancy designs	2 26
22	Rambler, process finish, hard surface, set pattern, margin backs, all colors	3 00
155	Tourists hard process finish, set pattern, margin backs, red, blues, greens and browns	3 00
155X	Ex, same as No. 155, gold edges	4 12
33	Apollo, enameled, aluminum surface, oak leaf shield and cross-bones at bottom backs, all colors	4 30
808	Bicycle, ivory finish, highly enameled, bicycle and other popular designs (registered) in greatest variety and in all colors, orders filled at lowest market price	
808X	Ex, same as No. 808, gold edges	6 20
45	Texan, ivory finish, enameled, lone star, palm leaf and other backs	4 30
188	Capitol, double enameled, popular club and fancy backs, all colors	4 76
98	Bridge, Jumbo indexes, extra large, double enameled, linen stock, club faces	6 66
202	Sportsman's, double enameled linen stock, club faces, large indexes, plaid, net and serpent club backs, in red, blue, green, brown	6 66
67	Lenox, right and left-handed quadra indexes, double enameled, linen stock, especially designed large indexes in all four corners, quadra back, in red, blue, green, brown, Lenox back, in red and blue	6 66
62X	Ye Witches Fortune-Telling Cards, new and handsome fortune-telling pack, the significance of the various face cards brought out by appropriate illustrations, gold edges	8 40

No.		Per doz.
66X	The Nile Fortune Cards a new pack of fortune-telling cards, tinted panel faces with the signification of each card printed on its face, can be used by every one, sphinx backs, printed in two colors, linen stock, double enameled, instructions for fortune telling in each pack, complete for playing all card games, gold edges	8 40
65X	The Stage Playing Cards, gold edges, portraits of professional stars, actors and actresses of the stage	11 40
1	Bijou, gold edges new U. S. Whist size, double enameled, especially designed large indexes, suitable for bridge, etc., assorted and Baronial backs each design printed in contrasting color combinations, gold edges, also a line of six Scotch plaid backs Gordon, Murray, Campbell, Robertson, Macdonald and Stewart (dress)	12 60

11 AND 12 SPOT CARDS

No.		Per doz.
555	Full house Poker Cards (patented June 30, 1896), fifty cards, containing 11 and 12 spots of each suit	$5 66
500	Five Hundred (patented June 30, 1896), 61 cards, containing 11 and 12 spots of each suit, double enameled, fine club quality	6 66

THE MYSTIC SERIES

A fine line of secret society cards, special emblematic backs and jokers in colors

No.		Per doz.
888G	Goat (General	$6 66
888K	Knights of Pythias	6 66
888OF	Odd Fellows	6 66

SECONDS

No.		Per doz.
892	Treasury "Seconds," double enameled, linen stock, cherub and other club backs	4 76

PINOCHLE

No.		Per doz.
300	48 cards enameled 9s up	$4 00
600	64 " " 7s "	6 66
930	New long, narrow shape, size 2½x3¾, 7s up	6 66

TOY CARDS

No.		Per doz.
24	Little Duke, small size, 1¾x1¾, a handsome children's card, round corners, faces in five colors, backs in various colors	$1 60
343	Cadets, small size, 1⅝x2½, plaids and calico backs	1 60
29	Faintleroy, enameled, ivory finish, size 1⅝x2½, juvenile back design	2 38
29X	Ex, same as No. 29, gold edges	3 34
654	Buster Brown's own cards size 1⅝x2½, enameled, illustrating antics of Buster and Tige	2 38

SKAT CARDS

No.		Per doz.
1	American faces, double enameled, linen stock 36 cards to pack	$4 30
2	German faces, double enameled linen stock, 36 cards to pack	5 70

GAIGEL

No.		Per doz.
3	German faces, double packs, 48 cards	$5 70

SPANISH CARDS

No.		Per doz.
71	Las Leonas, genuine parchment stock, possesses all the finest Spanish qualities, permanent colors, size 2⅞x3⅝, hard surface finish, 48 cards, tangle and wave backs, in red, blue and black, plaid back, in red and dark blue	$6 66

WHIST CARDS

No.		Per doz.
21	Junior Ivory finish, highly enameled, junior size 2⅛x3¼	$4 28
133	Columbia, French size, 2¼x3½ enameled, aluminum surface, for whist	4 76
39	Trophy Whist, French size 2⅛x3½, double enameled, linen stock, for regular and duplicate whist, character faces, with extra large indexes, backs and faces registered, a new line of steel-plate backs	6 66
39X	Ex, same as No. 39, gold edges	8 40
93	Ivory, extra whist size, 2¼x3¾, whist and club backs	6 66
707	Cabinet, new U. S. whist size, double enameled, especially designed large indexes, suitable for bridge, etc., two-color backs, Wheelock, in red blue, green, and brown effects, Cavendish and Hoyle, in red and blue	6 66

CONGRESS

Consisting of the following backs

No.		No.		No.		No.	
606-1	Antiquation.	606-34	Mistletoe.	606-59	Colonial Girl.	606-89	Jerry
606-3	Cavalier	606-42	Lily.	606-69	Moonlight,	606-90	La France
606-4	Diana	606-43	Military	606-70	Pocahontas.	606-91	Hermie
606-5	Congress Delft.	606-44	Parisian.	606-71	Captain Kidd.	606-92	Beauty's Mirror
606-7	Fishers' Return	606-46	Spanish.	606-72	Knuckle Down.	606-93	Cupid's Secret.
606-8	Good Night.	606-47	China.	606-73	The Only Pebble	606-94	A Dead Heat
606-9	Holland.	606-48	Rose Shower	606-74	Sunbown	606-95	Beacon Light
606-14	Milk.	606-49	Violets	606-75	The Dancers	606-96	Iroquois.
606-15	Minuet.	606-57	Blacksmith.	606-77	Expectation.	606-97	Oasis
606-16	Moon Fairy	606-59	Summer	606-78	The Old, Old Story.	606-98	Nymph
606-18	Music Hath Charms	606-60	Rose (silk finish).	606-79	Bernice.	606-99	Petite
606-24	Priscilla	606-61	Mountaineer.	606-82	Dolores.	606-100	Flirtation
606-25	Rookwood Indian.	606-63	Chesfoo.	606-84	An Old Fashioned Girl.	606-101	Fortuna
606-27	Rube.	606-64	At Sea.	606-85	Miss Demure.	606-102	Yale
606-28	Spring.	606-65	In Days of Old.	606-86	Laughing Water	606-103	Harvard.
606-29	Sitting Bull.	606-66	Autumn (silk finish).	606-88	Erin.	606-104	Cornell.
606-30	Tambourine	606-67	In Old Madrid			606-105	Princeton
606-31	George Washington.						

Congress Cards, all numbers — Per doz. $8 00

No. 606-56 Initial Series, (Congress), all letters of the alphabet, printed in gold and colors — $8 00

606 Special assortment of ½ dozen made up from the No. 606 Congress cards, six different backs in carton. — Per quarter of 1 doz. $4 00

See page 203 for illustrations of some numbers of Congress Cards listed above

PLAYING CARDS -Continued

RUSSELL'S "WORLD'S BEST PLAYING CARDS"

"RECRUITS"

Manufacturer claims that this card is better than the "Steamboats," stating it is made of a finer grade of stock. It is enameled, and has long distance faces. In case with patent opening so that contents may be seen without breaking government seal. One dozen in box. Per dozen.....$1 60

"RUSTLERS"

A low priced enameled card. Manufacturer says: "Is as good if not better than any playing card heretofore sold for twenty-five cents. Its snap, slip and surface are perfect and its wearing qualities excellent. It has long distance faces, and is said to be very popular in the 'Great West.' The backs are appropriate to the titles, i. e., Texas Steer, Navajo' 'Cinch' and 'Geometric No 105.'" Per dozen.....$2 64

"PINOCHLE"

This card was officially adopted by the New York State Pinochle Association, and was used in the New York State Pinochle Championship Tournament. Per dozen.....$2 96

"REGULARS"

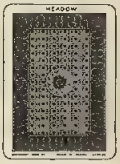
This card is said by the manufacturer to be the perfection of card production. The backs are "Sabre," "Mandolin," "Oak," "Marine," and "Liberty" American Flag in two colors. Is a popular club card also much used by social club parties. Per dozen.....$3 80

No. 323 "BLUE RIBBON"

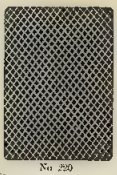
Highly enameled, do not thicken with use, especially adapted for club purposes, comes in "Deep Sea," "Meadow," and No. 108 backs. One dozen in box. Per dozen.....$3 80

"REGENTS"

Artistic backs printed in many colors from famous paintings on ivory, in the following backs: "Cupidet," "Daughter of King George III" and "Cupes Maidens," gold edges, in slide covered boxes, one dozen in box. Per dozen $8 00



NEW YORK CONSOLIDATED CARD CO.'S



No. 220

No. 94

No. 444

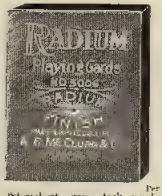
No. 92

No. 352

No. 35

No.		Per doz.
220	"Steamboats." Round corners, star, plaid and cactus backs	$1 50
94	"Hustler." Fancy backs, plain paper, nigh finish	2 50
444	"Hart's Crown." Fine quality, enameled, highly finished, new and varied assortment of fancy backs in colors and tints	3 00
92	"Bee." See U. S. Pat. Off. A double enameled card of extra quality stock, finish and slip, new and original designs, printed in several colors	4 00
35	Seconds, "Angel Backs." (See U. S. Pat. Off.)	$4 50
352	Hart's "Squeezers." Pure linen stock: assorted backs, double enameled. For Poker, Bridge Whist and all games	4 50
35	Hart's "Squeezers." Is made of the finest pure linen stock in a large variety of designs and colors, including the popular "Angel Back," and is used in all the clubs of importance throughout the world	11 40

MISCELLANEOUS



No.		Per doz.
5000	"Steamboat" good stock, plaid backs, blue or green, one design, two-color faces	$1 40
5006	"Radium," fine quality linen stock, radium finish easy slip, in fine telescope box	3 60
28	"Success," best "Swansdown" linen stock finish, unexcelled slip, assorted color backs, assorted designs, in fine leatherette telescope box	$3 80
04X	"Strollers," gold edges	$4 00
228	"Chancellor Club" fancy backs, packed in leatherette telescope box	4 00
151	Lilac Bridge Whist "Swansdown" finish, ladies size, put up in leatherette telescope box	$4 00

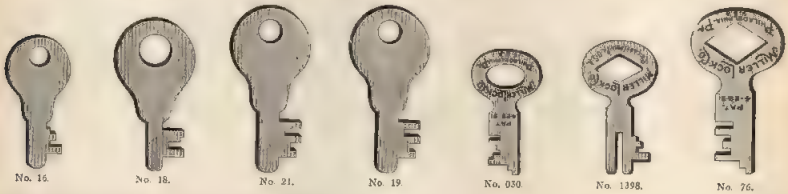
KEYS.

FULL SIZE CUTS

ASSORTED PAD LOCK.

No. 1410 No. 1411. No. 1413. No. 1418 No. 1417.

Common, Assorted Sizes and Patterns, Half Gross in a Box . . . . Per gross $4 80



No. 16. No. 18. No. 21. No. 19 No. 030 No. 1398. No. 76.

Flat Steel, Assorted Sizes and Patterns, Half Gross in a Box . . . . . Per gross $7.20

ASSORTED BAG.

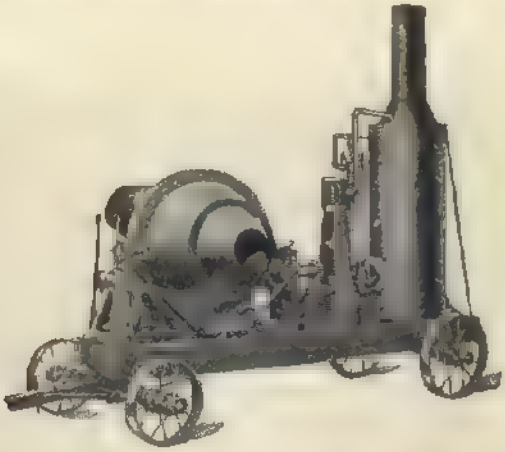
No. 16 No. 202 No. 200. No. 0107. No. 201. No. 18.

No. 5 No. 15. No. 13 No. 1 No. 12. No. 14

Bag Keys, Assorted Sizes and Patterns, Half Gross in a Box . . . . . Per gross $4 00

THE SMITH CONCRETE MIXER

A "Batch" Mixer, Fed and Discharged by Tilting While Running



The above illustration shows the standard outfit for general contract work, i. e., mixer direct connected to vertical steam engine and boiler, all complete and mounted on trucks for transportation.

Also furnished with steam engine only, gasoline engine or motor, or with fast pulley and with or without trucks.

The machine consists of a drum of double conical form supported and guided by a frame which can be tilted at will while the drum is revolving. The materials to be mixed are fed at one end of the drum, and when mixed are discharged by the drum tilting the drum while running at full speed. The interior of the drum is provided with rigid blades arranged in sets, each set forming a "shingled" spiral. The alternate sets are of reversed winding and overlap each other in the middle of the drum.

Sizes and Capacities

Six sizes of power-driven machines are now offered to the trade. These sizes handle batches based on even bags of Portland Cement as follows:

No. 0 —Will usually require the cement to be measured.
No. 1 —Any proportions with one bag of Portland Cement.
No. 2 —Any ordinary proportions with two bags of Portland Cement.
No. 2½—Any proportions with two bags of Portland Cement.
No. 4 —Any proportions with three bags of Portland Cement.
No. 5 —Any proportions with four bags or one barrel of Portland Cement.

A batch every two minutes may be obtained when the mixer is fed with wheelbarrows. If batch feeding hopper, and hop cars are employed for feeding, a batch every minute is possible. Still better results have been obtained by using a measuring hopper filled from storage bins.

Size Number	No. 0	No. 1	No. 2	No. 2½	No. 4	No. 5
Standard charge cubic feet: Cement	1	1	2	2	3	4
Standard charge cubic feet: Sand	2½	4	6	7½	10½	14
Standard charge cubic feet: Stone	5	8	12	15	21	28
Total unmixed per batch	8½	13	20	24½	34½	46
Mixed material per batch (loose)	5	9	13½	16½	22	30
Cubic yards mixed per hour, up to	9	20	30	39	46	62
Power required—H. P.	4	6	8	10	15	19
Revolutions per minute of driving pulley	218	180	173	162	160	125
Diameter and face of driving pulley	20x4½	24x5½	28x5½	28x6½	36x6½	48x7½
Weight on skids with pulley only	1,600	2,500	3,800	4,500	5,600	7,300
Weight on truck with pulley or gears	2,100	[illegible]	4,400	5,500		
Weight on truck with steam engine and boiler	3,100	[illegible]	7,400	8,400		
Weight on truck with gasoline engine	3,600	[illegible]	7,000	8,500		

"X-L-ALL" HAND AND POWER, BATCH CONCRETE MIXER

For Concrete Block Sidewalk Work, Etc.

No. 1. Loading

No. 2 Mixing

No. 3. Discharging

Note the material from the outside of one of the wings falls to the center of the machine where it comes in contact with deflecting bars before passing into other wing, thus breaking and mixing the material as the machine continues to revolve. The material on the bottom of one wing is transposed and at the end of the revolution it rests on the top of the opposite wing. This operation is repeated as the cylinder revolves.

The illustrations herewith show the position of the concrete during the revolutions of the drum. In other words, at the time the drum is being loaded the bases of the two wings are parallel to each other, enabling you to load the drum to its full capacity, then follow the line of mixture as it appears when the drum is being turned over, as shown in illustration No. 2. See how the mixture is shifted from the bottom of one wing across the entire width of the drum or cylinder by passing through knives or breaking bars. At no time during the operation is the batch rolled over, instead it is continually thrown from the bottom of one position to the center or farther side of the drum. This occurs twice with each revolution of the crank.

This machine will mix a batch of concrete more thoroughly than can possibly be done by hoes or shovels. An important feature is the perforated shaft extending through the cylinder of the machine, which makes it possible to secure great efficiency in applying water to the concrete. The amount of water should be perfectly distributed at all stages during mixing and with this perforated shaft water may be used in such quantities as are desired. You control the supply of water by means of a pet-cock.

Each machine is supplied with a bracket for a water tank, also connections from which to attach a hose to the pump or city water.

The mixer should be washed out or the drums removed when you are through using it. It is necessary to remove the drums only when you wish to wash the mixer, as the mixer is loaded and discharged as shown in cut.

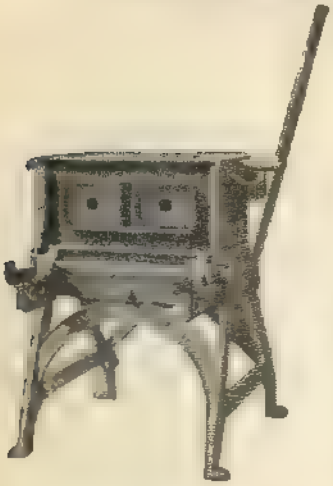
Sizes, Capacities and Prices

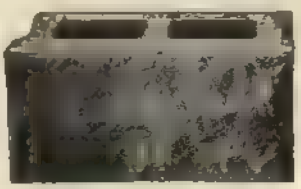
Size	Style	Capacity per Batch, Cubic Feet	Cubic Yards per Hour	Turns of Crank	Size of Cylinder, Inches	Gauge of Steel	Weight, Lbs.	Price
No. 3	Hand	3	3 to 4	36	32x42	12	600	$ 85.00
No. 4	Power	3	3 to 5	36	32x42	12	700	100.00

Power mixer is equipped with reversible gear and 24x3 pulley.

Machine will mix a batch in about one minute, can be discharged in about one-quarter of a minute and loaded in about three-quarters of a minute.

THE "BRANDELL" CONCRETE BLOCK MACHINES





The Brandell Concrete Block Machine is a strictly face down machine. The face plate, which can be exchanged by the turn of one screw, rests on the bottom of the mold, allowing the operator to tamp directly on the face. By this method a great saving is effected by using a richer material (1–2) for the face and coarser material (1–4 or 5) for the back of the block. By this process a clear, sharp impression of the face is obtained and a natural looking stone is produced free from porous holes or defects, dense and impervious to moisture. The facing can be colored if desired.

The machine makes standard blocks of 16 inch length, or any fraction thereof, 4 inch or 8 inch height and 8 inch width. It makes quarter, half and three-quarter blocks, octagon blocks of any desired angle, corner blocks, inner corner blocks, veneer blocks, joist blocks, gable blocks, water tables, pier blocks, circle blocks, in smooth, rock face, panel or any design, in fact, any kind of a block which may be required for the construction of any building. The outfit for making octagon blocks of an angle of 45 degrees goes with every machine without extra charge.

The Brandell Concrete Block Machine is interchangeable. By loosening and taking the mold from the base of a "Model 8," the operator can place thereon either a 10 inch or 12 inch attachment, making blocks 10 inches or 12 inches wide, 8 inches high, 16 inches long. The same changes can be made with "Model 10 or 12." Only one size of face plates is required for making different widths of blocks.

For machines making blocks of 24 inches in length, see our Price List.

Iron pallets only are used with the Brandell Machine. The original cost of iron pallets makes them cheaper than the final cost of wooden pallets, which are apt to warp and cause blocks to break and crack. An iron pallet will last a lifetime. 100 iron pallets are included in the price of every 16-inch machine.

STANDARD 8-INCH OUTFIT

Makes hollow blocks, 33 per cent air space, 16 inches long, including mortar joint, 8 inches high and 8 inches wide, with quarter, half and three-quarter blocks, octagon blocks, corner blocks, inner corner blocks and blocks for joists, gables, porch piers, porches and foundations.

Unless otherwise ordered, the machine is equipped to make blocks in two designs, viz., plain and rock face.

The complete outfit includes the following parts:

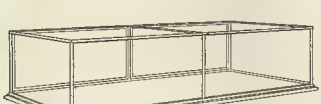
6 face plates.
2 small face plates for octagons.
6 end doors.
1 attachment for back angle of octagon blocks.
1 attachment for inner octagon.
6 plates for fractional blocks, joist blocks and inner corners.
1 attachment to close pallet for special blocks.
4 core-opening fillers for special blocks.
1 stripper for halves and quarters.
1 carrier to remove blocks.
2 tampers; gable angle board; withdrawal hook.
100 cast iron pallets.
Weight of machine and outfit, 1,000 lbs.

Complete outfit as above.....$125.00 net

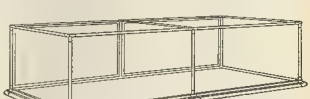
Ask for price list of other sizes and attachments.

SHOW CASES AND UMBRELLA CABINETS

BOTH our Nos. 5 and 6 show cases have square front, substantially made and nicely finished. They are of standard width, accepting two full size trays (11 3-4x11 3-4 inches). Made with oak, walnut or cherry finish frames, any height from 15 to 24 inches, fitted with horizontal sliding mirror doors. Glazed with best *double strength* glass. Cases 5 to 8 foot long have *two* lights of glass in top and front; 9 to 12 foot *three* lights in top and front. LIST PRICES F. O. B. FACTORY. NO EXTRA CHARGE FOR BOXING.



No. 6 without metal corners.



No. 8 with metal corners.

LIST PRICES ON STYLE NO. 6--Without Metal Corners.

	Number of Lights in top and front of cases.	2 ft.	3 ft.	4 ft.	5 ft.	6 ft.	7 ft.	8 ft.	9 ft.	10 ft.	11 ft.	12 ft.
15 in. high, plain corners		$ 8 53	$10 80	$13 10	$14 75	$17 80	$20 47	$24 05	$26 66	$30 86	$33 23	$39 16
16 and 17 in. " " "	5 to 8 ft.,	9 30	10 80	13 80	16 53	18 76	21 85	25 40	26 17	32 36	34 23	41 14
18 and 19 in. " " "	2 lights,	10 86	11 83	15 95	17 77	21 84	26 28	28 90	30 02	36 00	40 30	47 87
20 and 21 in. " " "	9 to 12 ft.,	11 39	13 68	16 67	16 20	23 86	27 17	30 36	32 51	39 80	42 80	52 49
22 and 23 in. " " "	3 lights.	12 29	13 95	18 50	22 06	24 73	28 70	31 84	36 02	41 51	44 66	55 40
24 in. " " "		13 78	14 91	19 66	23 65	27 05	30 93	39 76	38 97	45 19	46 32	57 66

LIST PRICES ON STYLE NO. 5--With Metal Corners.

	Number of Lights in top and front of cases.	2 ft.	3 ft.	4 ft.	5 ft.	6 ft.	7 ft.	8 ft.	9 ft.	10 ft.	11 ft.	12 ft.
15 in. high metal corners		$13 20	$13 92	$17 28	$18 68	$23 68	$26 14	$29 02	$30 58	$35 00	$38 14	$44 10
16 and 17 in. " " "	5 to 8 ft.,	13 94	14 08	17 65	19 60	23 73	26 92	30 35	31 62	36 56	39 62	46 08
18 and 19 in. " " "	2 lights,	14 83	16 78	19 92	21 94	27 46	30 23	33 84	34 68	40 94	45 12	52 82
20 and 21 in. " " "	9 to 12 ft.	15 04	16 86	20 94	23 36	27 80	32 10	36 32	37 44	44 74	47 82	57 52
22 and 23 in. " " "	3 lights.	15 26	17 24	21 15	26 04	28 82	33 94	36 82	42 04	46 72	51 33	58 78
24 in. " " "		16 42	17 63	21 66	26 80	30 80	34 08	37 50	42 82	50 40	54 46	61 66

When ordering **mention kind of wood or finish, length and height.**

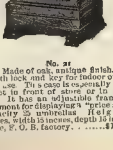
UMBRELLA and CANÉ CABINETS--Useful Ornaments.

These are manufactured by a firm who devote its entire time and energy in the construction of cabinets and display cases. They are strongly constructed and nicely finished and represent very good value for the money. Jewelers who carry a stock of umbrellas and canes cannot afford to be without one. List prices.

No. 19

Made of oak, antique finish.
Improved Umbrella Cabinet, front of case lifts out to permit cleaning, glazed with double strength glass. Capacity 25 umbrellas. Height 44 inches, width 17 inches, depth 17 inches.

Price, F. O. B. factory..... .. $16 50



No. 21

Made of oak, antique finish.
With lock and key for indoor or outdoor use. This case is especially made to set in front of store or in doorway. It has an adjustable frame attachment for displaying a "prize cane." Capacity 25 umbrellas. Height 48 inches, width 15 inches, depth 15 inches.

Price, F. O. B. factory. $19 70

No. 23

Made of oak, antique finish.
Improved Umbrella Cabinet, front of case lifts out to permit cleaning of interior, glazed with double strength glass. Capacity 40 umbrellas. Height 38 inches, width 21 inches, depth 21 inches.

Price, F. O B. factory.... .... $20 80

No. 24

Made of oak, antique finish.
Improved Circle Umbrella Cabinet, fitted door in back to permit cleaning interior, glazed with double strength glass. Capacity 38 umbrellas. Height 43 inches, diameter 23 inches.

Price, F. O. B. factory..... $31 90

WALL CASE, SHOW CASE STANDS and STORE CHAIR

No. 204 WALL CASE

LIST PRICES.

ALL STORE FIXTURES WE OFFER ARE MANUFACTURED BY RESPONSIBLE FIRMS

JEWELERS' WALL CASE--Popular Design

Made of oak, substantially built, elegantly finished in golden oak or lighter shades. Base 30 inches high. Drawers in center and cupboards with swing doors at each end. Upper part 60 inches high and 16 inches deep inside. Horizontally sliding doors on metal tracks and ball-bearing rollers or perpendicular sliding doors with weights. Wood shelves on adjustable ratchet strips and cleats and nickel plated, adjustable brackets in center.

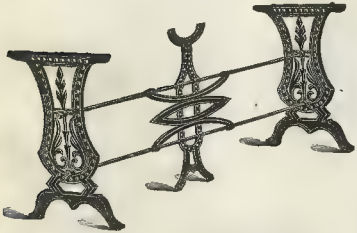
LIST PRICES.

8 foot	$122 00
10 foot	148 00
12 foot	183 50
14 foot	214 00

*Extra for lining back, top of upper part and shelves with black felt cloth $3.00 per running foot.

IRON SHOW CASE STANDS

List Prices.



Made in three heights, viz.: 24, 26 and 29 inches.

No 530 With two end standards and center support, for cases 3 to 8 ft. Price $ 6 00

No 537 With three heavy standards and two supports, for cases 9 to 12 ft. 13 00

TABLE FOR SHOW CASE

Made of oak, with square supports, nicely finished. Made in heights from 20 to 30 inches.

Oak or open top (as illustration).		Oak, solid top.	
No. 57	3 ft.	$17 00	No. 67 3 ft. $20 40
No. 58	4 ft.	18 00	No. 68 4 ft. 22 80
No. 59	5 ft.	20 50	No. 69 5 ft. 27 50
No. 60	6 ft.	23 00	No. 70 6 ft. 30 00
No. 61	7 ft.	25 20	No. 71 7 ft. 33 60
No. 62	8 ft.	28 60	No. 72 8 ft. 38 40
No. 63	9 ft.	31 20	No. 73 9 ft. 42 00
No. 64	10 ft.	33 60	No. 74 10 ft. 45 60
No. 65	11 ft.	36 00	No. 75 11 ft. 49 20
No. 66	12 ft.	40 80	No. 76 12 ft. 55 50

METAL STORE CHAIR AND STOOL.

These are indestructible. They will out live all other kind of furniture many times over and require the least attention. Made of spring wire of proper thickness and oxidized copper finish.

Illustration of No. 525.

This style stand is made in three heights, viz.: 24, 26 and 29 inches, nicely finished.

No. 525 Two standards, for cases 3 to 6 ft. $ 7 50

No. 536 Three standards, for cases 7 to 12 ft. 12 00

No. 340 Store Chair, can furnish with either oak or birch, mahogany finished seat $5 00

No. 340-L Leatherette seat 5 80

No 340½ Counter Stool, height 24 inches, diameter of seat, 12 inches. With either oak or birch, mahogany finish seat $3 80

No. 340½-L Leatherette seat 4 60

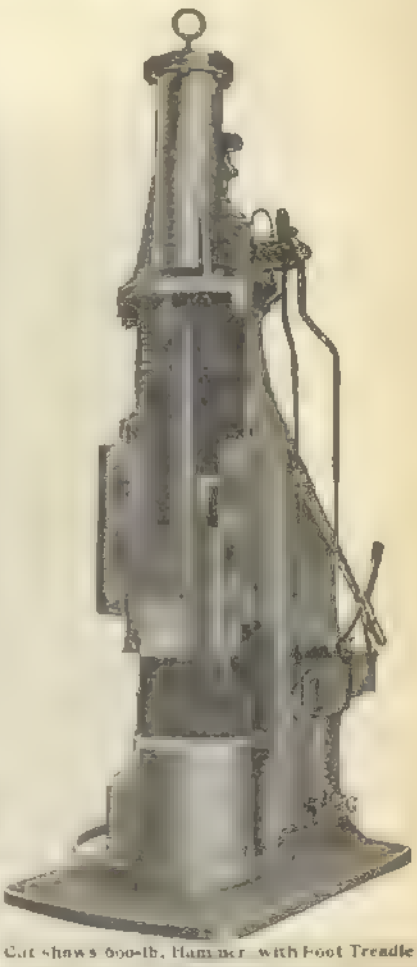
H. Channon Company, Chicago.

AMERICAN STEAM HAMMERS

[illegible]-lb. Hammer

Our 400 and 600 lb. steam hammers are equipped with foot treadle, by which the smith can operate the valve gear with his foot [illegible] etc. These hammers are of the latest design, and embrace every new feature of known value. They are automatic, double-acting, and readily operated by hand. The cylinder is cast from the very [illegible] close grained [illegible]. The exhaust [illegible] so arranged as to keep the cylinder always drained. Cylinder has a balance piston valve. The throttle valve is under control of the operator. The steam valve is operated by a [illegible] running on a beveled path formed on the back of the ram. The position of this cam is governed by a hand lever in the usual manner.

The piston rod is a steel forging, forged solid with the piston head, which latter is provided with packing rings. The ram is of solid steel having cam path solid therewith, and V [illegible] guides in the frame.



Cut shows 600-lb. Hammer with Foot Treadle

The frame is of strong and [illegible] design [illegible] quality close grained gray iron. It is provided with [illegible] V guides for [illegible] and [illegible] bolts well anchored in the frame, and [illegible] spring washers under the [illegible] to allow for sudden shock.

The upper die is a steel [illegible] to ram by [illegible] and wedge, and is easily removable. The anvil cap is secured to [illegible] by dovetail and wedge. The weight of the falling [illegible] ram and [illegible] designated by the size of the hammer. The weight of the lower [illegible] is about [illegible] one-half times [illegible] with [illegible] provided for lubricating cylinder and valve. All hammers are tested with steam before leaving works.

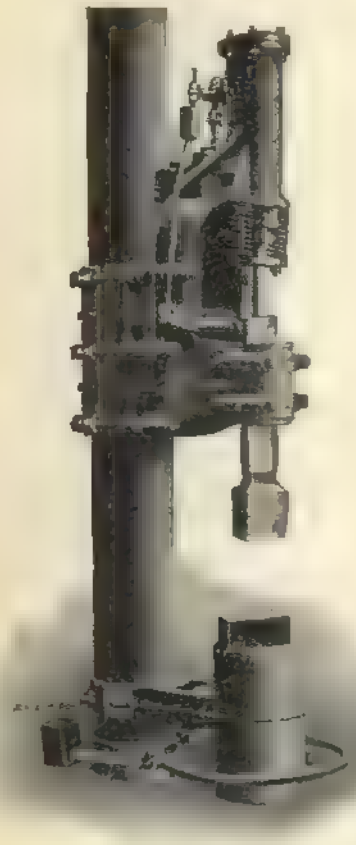
SINGLE FRAME HAMMERS

Size Lbs.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] to Frame Inches	[illegible]		Shipping Weight	Price Each
	[illegible]	[illegible]	[illegible]	[illegible]		Steam, Inches	Exhaust, Inches		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	3	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	3	[illegible]	
[illegible]	[illegible]	[illegible]	8x10	[illegible]	28	[illegible]	3	[illegible]	

Double Frame Hammers quoted upon request.

POST HAMMERS

For Steam or Compressed Air



100 LB. HAMMER

Suitable for forgings not exceeding 2 inches square Cylinder, 3 inches in Diameter by 10-inch Stroke. Usual Die Face, 2½x5 inches. Distance center of die to face of post, 10¾ inches. Shipping weight, 1,050 lbs

Price $281 25

250 LB. HAMMER

Suitable for forgings not exceeding 3½ inches square Cylinder, 5 inches in Diameter by 18-inch Stroke. Usual Die Face 4½x7 inches. Distance center of die to face of post, 16 inches. Shipping weight, 2,950 lbs.

Price.....$500.00

AIR AND STEAM REQUIRED

It is impossible to state the number of cubic feet of free air per minute consumed by hammers without knowing the number of blows per minute. The number of blows per minute is entirely under control of the operator, and varies according to the work being done; for some work, very quick, light blows are required, while for other work, two or three heavy blows are all that are needed

For ordinary operation, the 100-lb. hammer will require 1 boiler horse power and the 250-lb., 2½ boiler horse power

The 100-lb. hammer will require ⅜ cubic foot free air per stroke; the 250-lb., 1½ cubic feet free air per stroke Air should be maintained at about 90 lbs pressure for satisfactory operation.

DESCRIPTION

These hammers are particularly well adapted for all classes of light forging—either drawing, welding or die work. They can be easily handled by the smith without a helper, and take up very little shop room. They can be operated by steam or compressed air They are regularly arranged for bolting to a wooden post When so ordered they may be provided with special attachment for bolting to structural steel column, or if it is desired, a steel column made of extra heavy weight pipe may be furnished at an extra price Price of hammer does not include post or necessary clamps for fastening to steel or pipe column

A special valve movement and treadle for handling these hammers has been designed and patented It is so arranged that a slight movement of the treadle causes the ram to rise to top of its stroke and remain there for any length of time desired, thus enabling the operator to adjust articles or tools on the lower die If the treadle is then pressed down to the limit, the ram will give a hard fall blow the same as a drop hammer, or the treadle can be pressed down part way, when the hammer will give repeated hard or light blows, as may be required This special valve gear permits one man to easily handle the hammer for drawing or regular forge work or for die work The change from one kind of blow to the other is made instantly and smoothly

The upper and lower dies are steel forgings fastened by means of dovetail and wedges so that they can be easily removed

The anvil is designed to be secured to a wooden block set on end

The weight of the falling parts (the piston, piston rod, ram and die) designates the size of the hammer

When ordering, please state whether steam or compressed air will be used

Cut of 90-Lb. Hammer

JUSTICE HAMMERS

With New Style Rubber Cushions and Oscillating Levers

High degree of speed, equal to any and faster than most.

The force of blow is particularly heavy for the size of the hammer. Size for size, these hammers will be found to strike, in almost all cases, a heavier and more effective blow than others rated as of equal size.

CONTROL

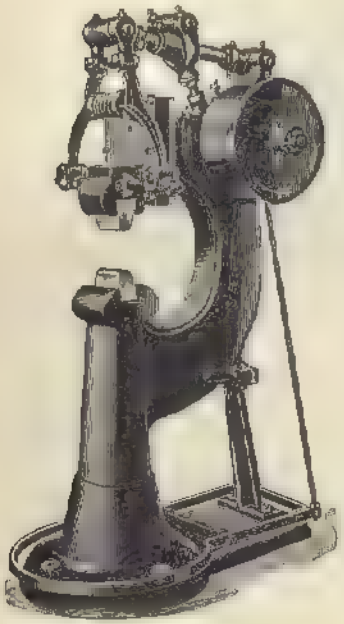
Double-ended frictions on the 90-lb. and smaller permit of an unusually excellent control. The larger sizes we have generally made with the belt tightener, which takes hold harder and swings the heavier rams quite efficiently.

ADJUSTMENTS

There is an adjustment for both the length of stroke and also for the distance between the dies, the adjustment being readily made for any class of work.

Size Actual Weight of Ram without Die Lbs	Revolutions per Minute	Size of Iron Adapted to Work Inches	Horse Power Required to Run	Weight, About, Lbs.	Price Each
35	400	1 x1 or less	¼ to ½	1400	$ 375.00
55	350	1¾x1¾ "	1	2600	450 00
90	300	2½x2½ "	2	4500	550.00
130	225 to 275	3 x3 "	2 to 3	6300	800 00
165	200 to 240	3½x3½ "	4 to 5	8200	950 00
300	150 to 180	4½x4½	8	13000	1200 00

THE "KERRIHARD" POWER HAMMER



The Kerrihard Hammer is a combination of the helve and direct acting hammer, doing away with the disc helve and pitman and condensing the entire working parts in such a way as to increase the efficiency of both the helve and direct acting features.

The Main Frame and Anvil is in one piece. The entire casting is strong and heavily proportioned with the right amount of metal in the proper place to withstand the jar and shock of continual hammering.

The Head or Ram is machined and gibbed to a machined casting, securely fastened to the main frame, thus making provision for taking up all wear and is adjustable from 3½ to 9 inches and is so arranged that it is always the right distance from the anvil block.

The Eccentric Strap is the best bronze.

All Shafts and Pins subject to wear are hammered steel.

The Clutch is the friction type of new design. It has but three parts and the slightest pressure upon the tread produces the required blow at the operator's will. It releases automatically.

The Spring. There is but one spring in the Kerrihard Hammer and that is the finest crucible steel.

Dies. We furnish with each machine one set of regular dies (lower die is flat; upper one slightly rounding on face), which answer for all ordinary work, but we can furnish any style die at slight additional cost.

No. 1 Hammer

Height over all, inches	55
Floor Space, inches	18x30
Height of Anvil Block, inches,	31
Weight of Ram lbs	30
Shipping Weight of Hammer, lbs.	700
Size of Pulley inches	11
Speed R. P. M.	250

Will handle about 2-inch material, round or square.

One horse power to operate.

Price.....$106 25

No. 2 Hammer

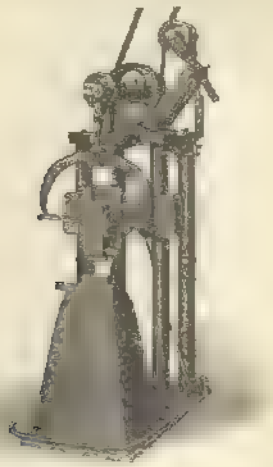
Height over all, inches	60
Floor Space, inches.	22½x40
Height of Anvil Block inches,	31
Weight of Ram, lbs.	75
Shipping Weight of Hammer, lbs.	1250
Size of Pulley, inches	11
Speed R P M	250

Will handle about 4-inch material, round or square

Two horse power to operate

Price $187 50

"BOSS" IMPROVED POWER HAMMER



This hammer is suitable for dressing plow lays, harrow discs, cultivator shovels, welding axles, tires, bridge rods, etc. Only one horsepower is required, which may be in the form of a tread or sweep horsepower, gasoline engine, or in fact any sort of light power

The Boss Power Hammer is a useful machine in general repair and blacksmith shops wagon and buggy factories, coal mines, gold mines, shovel factories, etc.

A piece of 1½-inch square iron 6 inches long has been drawn out to 2½ feet with this hammer in one heat. It has welded iron 2 inches thick and as thin as ⅜ inch.

Only the best steel is used for hammer dies and they are carefully fitted so as to be held firmly in place by means of hand finished keys. The dies will work to the center of a 24-inch circle and will accommodate material 3½ inches thick extending through the frame, or 6 inches thick lengthwise of the dies. Size of upper die 2 by 4, lower die 2 by 5¼.

Send for further particulars, weight, prices, etc.

Power required .... 1 H. P.

Estimated force of blow at full speed, 300 pounds, or it will strike a blow light enough to crack an egg without crushing it

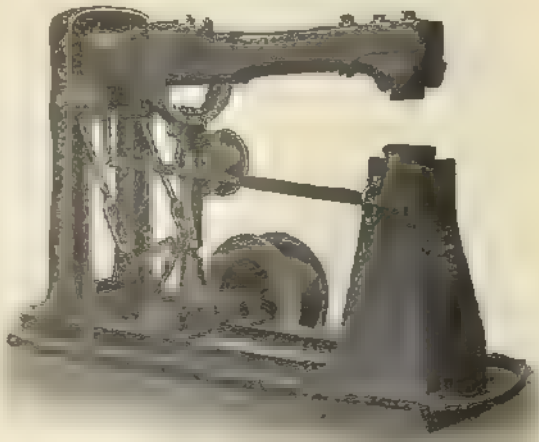
Floor space 24x44 inches, height 6 feet 5 inches, distance between columns 11¾ inches

Size of drive pulley on crankshaft, 10-inch diameter, 4-inch face, speed 375 per minute

Weight of hammer-head and die 45 pounds, weight of machine complete with anvil and dies 1,200 pounds. Knocked down and boxed for export, 1,600 pounds gross, 1,150 pounds net. Occupies 35 cubic feet

Price. $200 00

"HATHORN" HARD HITTING HELVE HAMMERS



The Bed is formed of two steel I-beams, firmly bolted together. This allows for more weight in the anvil, where it is needed.

The Anvil is separate from the bed and clamped against same. It rests directly on the foundation.

The Upright Frame is made of best cast iron and is well designed for strength and rigidness.

The Helve is made of selected hickory.

The Stroke is adjustable while the hammer is running by moving the rod at the left of the anvil.

The Pulleys are double flanged, for 4-inch belt, and the driving pulley is combined with balance wheel which always stops the hammer open, ready to receive work.

The Foot-lever, Brake and Tightener are all adjustable to suit the operator. The arrangement of the spring on the belt tightener is such that the farther down the foot-lever is pressed the easier it works

The shafting used is large, all boxes are wide and the best babbitt obtainable is used.

Specifications.

Height... .....3 feet 8 inches
Floor space.....16x60 inches
Power required.. . .. 1 horse
Die head . . 30 pounds
Dies.....Best tool steel

Extreme stroke, 12 to 14 inches depending on speed of hammer

	Size A.	Size B.
Anvil 28 inches high.....	350 lbs.	500 lbs.
Capacity, size iron.....	2½ in.	3 in.
Shafting cold rolled steel.....	1 7-16 in.	1¾ in.
Weight, pounds.....	1,000	1,350
Shipping weight, pounds	1,080	1,450
Price..... .	$150.00	$200.00

STEEL FRAME COASTERS.

No. 10

Special Round Back Angle Steel Runners, Enameled; with Fancy Metal Scroll Tips. Steel Knees, with Steel Braces; Top Board Handsomely Painted and Hand Decorated.

Per Dozen

No. 11C—16x12 inches over all, 4½ inches High, Three Steel Knees; Weight per dozen about 125 lbs. $32.00

No. 11D—18x12 inches over all, 4½ inches High, Four Steel Knees; Weight per dozen about 135 lbs. 40.00

No. 8

Special Round Back Angle Steel Runners, Enameled: Steel Knees with Steel Braces; Top Board Handsomely Painted and Hand Decorated.

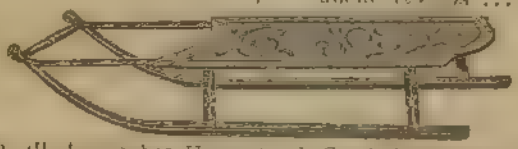
Per Dozen

No. 8—34x10½ inches over all; 4½ inches High; Two Steel Knees; Built for Speed; Weight per dozen about 75 lbs. $16.00

No. 9—[illegible]x11½ inches over all; 4½ inches High, Two Steel Knees; Weight per dozen about 90 lbs. 18.00

No. 10—[illegible]x12 inches over all, 4½ inches High; Two Steel Knees; Weight per dozen about 105 lbs. 21.00

No. 10C—16x12 inches over all, 4½ inches High, Three Steel Knees; Weight per dozen about 125 lbs. 24.00

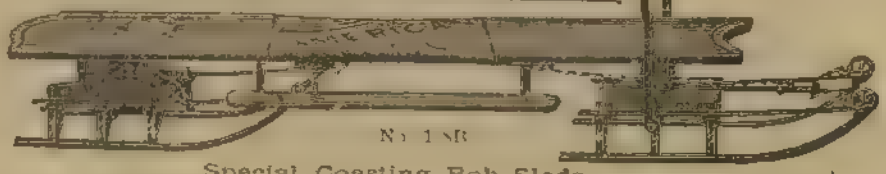


Per Dozen

No. 1C Coaster; 32x9 inches over all, 4½ inches High, Oval Steel Runners; Painted Black; Two Steel Knees without Braces, Wood Top Well Painted Varnished and Neatly Decorated; Weight per dozen about 60 lbs. $12.00

One-half Dozen in a Crate, Assorted Colors.

STEEL FRAME BOBS.



No. 1 SB

Special Coasting Bob Sleds.

Special Round Back Angle Steel Runners, Steel Knees, with Steel Braces on Each Truck; With Steering Gear, Brake and Foot Rests; Handsomely Painted and Hand Decorated; Built Extra Heavy for Hard Service.

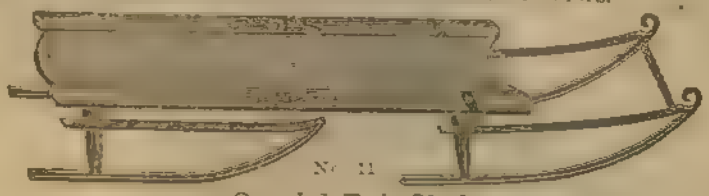
Per Dozen

No. 84—WITHOUT BRAKE; Length over all 84 inches; Top Board 72 inches Long, 14 inches Wide; Height 9½ inches; Two Steel Knees; Weight per dozen about 650 lbs. $168.00

No. 84B—WITH BRAKE; Length over all 84 inches; Top Board 72 inches Long, 14 inches Wide, Height 9½ inches, Two Steel Knees, Weight per dozen about 750 lbs. 192.00

No. 108B—WITH BRAKE; Length over all 108 inches; Top Board 96 inches, 14 inches Wide; Height 9½ inches; Three Steel Knees, Weight per dozen about 950 lbs. 240.00

One-twelfth Dozen in a Crate; Assorted Colors.



No. 11

Special Bob Sled.

Round Back Angle Steel Runners; Steel Knees With Steel Braces; Top Board Handsomely Painted and Hand Decorated; Front and Runners Oscillate, giving Full Control to User. Highest Speed and Most Satisfactory Bob Sled Made

Per Dozen

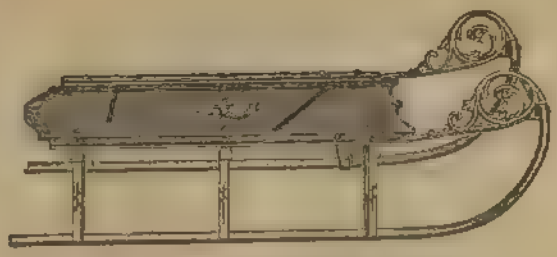
No. 11B 40x10½ inches over all, 5½ inches High; Weight per dozen about 125 lbs. $34.00

No. 11—44x11 inches over all, 5½ inches High; Weight per dozen about 140 lbs. 38.00

No. 11H—48x11½ inches over all, 5½ inches High, Weight per dozen about 155 lbs. 42.00

One-sixth Dozen in a Bundle; Assorted Colors.

STEEL FRAME SLEDS.



Special Girls' Sled, with Folding Foot Rests.

Per Dozen

No. 12G—37x12 inches over all; 7½ inches High; Special Round Back Angle Steel Runners, Finely Enameled; Three Steel Knees, with Steel Braces; Top Board Handsomely Painted Scarlet Color, with Hand Decorations; Running Gear White Enameled; a Very Attractive and Practical Sled; Weight per dozen about 120 lbs. $46.00

No. 12A.

Scroll Tip Sled.

Round Back Angle Steel Runners; Tinned Malleable Iron Scroll Tips; Steel Knees with Steel Braces; Top Board Handsomely Painted and Hand Decorated; a Sled Combining Beauty, Strength and Finish.

Per Dozen

No. 12—33x12 inches over all; 7½ inches High; Two Steel Knees; Weight per dozen about 105 lbs. $34.00

No. 12A—37x12 inches over all; 7½ inches High, Three Steel Knees; Weight per dozen about 120 lbs 38.00

No. 7A.

Goose Neck Sled.

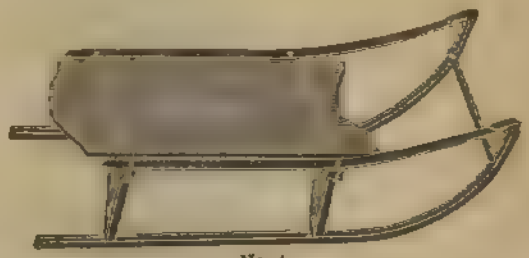
Enameled Round Back Angle Steel Runners; Steel Knees, with Steel Braces; Tinned Malleable Iron Goose Necks; Top Board Handsomely Painted and Hand Decorated.

Per Dozen

No. 6—30x12 inches over all; 7½ inches High; Two Steel Knees; Weight per dozen about 90 lbs. $22.00

No. 7—33x12 inches over all; 7½ inches High; Two Steel Knees; Weight per dozen about 95 lbs. 24.00

No. 7A—36x12 inches over all, 7½ inches High; Three Steel Knees; Weight per dozen about 105 lbs. 28.00



No. 4.

Enameled Round Back Angle Steel Runners; Steel Knees, with Steel Braces; Top Board Handsomely Painted and Hand Decorated.

Per Dozen

No. 2—29x10 inches over all; 6 inches High; Two Steel Knees; Weight per dozen about 70 lbs. $15.00

No. 4—30x12 inches over all; 7½ inches High; Two Steel Knees; Weight per dozen about 85 lbs. 17.00

No. 5—33x12 inches over all; 7½ inches High; Two Steel Knees; Weight per dozen about 90 lbs. 20.00

No. 5A—36x12 inches over all; 7½ inches High; Three Steel Knees; Weight per dozen about 100 lbs. 24.00

Sled.

Per Dozen

No. 1—27x9 inches over all; 6 inches High; Runners made of Oval Steel, Painted Black; Two Steel Knees, without Braces; Wood Top; Well Painted, Varnished and Nicely Decorated; Weight per dozen about 55 lbs. $12.00

One-sixth Dozen in a Bundle; Assorted Colors, Except No. 12G.

CLIPPER SLEDS.

Per Dozen

No. 219—HARDWOOD; 36x11 inches over all; 4 inches High; Half Oval Steel Shoes; Varnished on the Natural Wood; Ornamented and Finely Finished; Weight per dozen about 80 lbs $15.00

No. 217—HARDWOOD; 42x11 inches over all; 4 inches High; Round Spring Steel Shoes Varnished on the Natural Wood; Ornamented and Finely Finished; Weight per dozen about 115 lbs. 18.00

Per Dozen

No. 212—HARDWOOD; 42x12 inches over all; 4 inches High; Round Spring Steel Shoes, Varnished, Ornamented and Striped; Weight per dozen about 140 lbs. $15.00

No. 213—HARDWOOD; 48x12 inches over all; 4 inches High; Round Spring Steel Shoes; Varnished on the Natural Wood; Ornamented and Striped; Weight per dozen about 165 lbs. 24.00

One-third Dozen in a Crate; Assorted Colors.

Per Dozen

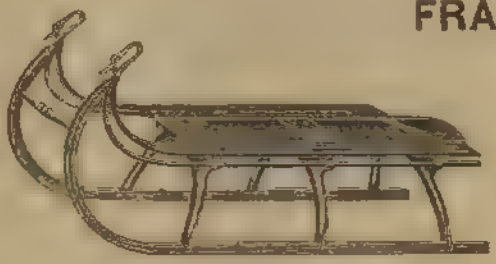
No. 201—HARDWOOD 32x10 inches over all; 4 inches High; Flat Iron Shoes; Painted, Varnished and Ornamented; Weight per dozen about 74 lbs. ..... $ 4.80

No. 221—HARDWOOD; 36x11 inches over all; 4 inches High; Round Spring Shoes; Painted Varnished and Ornamented; Weight per dozen about 105 lbs. 6 00

No. 223—HARDWOOD; 42x12 inches over all; 4 inches High; Round Spring Shoes; Painted, Varnished and Ornamented; Weight per dozen about 150 lbs. 12 00

Nos. 201 and 221, One-half Dozen; No. 223, One-third Dozen in a Crate, Assorted Colors

FRAME SLEDS.



Per Dozen

No. 210—ROCK ELM; 40x15 inches over all; 8 inches High; Three Bent Hardwood Knees, with Double Braced, Heavy Polished Oval Steel Shoes; Finely Polished and Ornamented; Weight per dozen about 80 lbs $24.00

Per Dozen

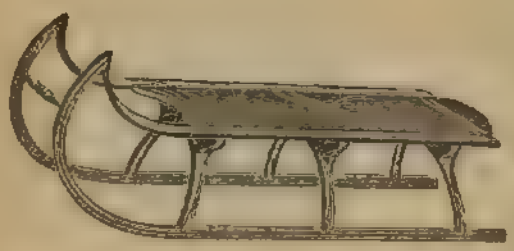
No. 208—HARDWOOD; 38x14 inches over all; 8 inches High; Three Bent Hardwood Knees; Half Oval Iron Braces, Tinned; Heavy, Half Oval Iron Shoes; Bow Runners, Striped and Ornamented; Top Board Handsomely Painted and Decorated; Weight per dozen about 86 lbs. $18.00

Per Dozen

No. 206—SELECTED OAK 35x13 inches over all; 7 inches High; Three Bent Hardwood Knees, Round Steel Shoes, Tinned Braces, Half Oval Iron Shoes, Finished on the Natural Wood, Top Board Painted and Ornamented; Weight per dozen about 84 lbs. $15.00

One-sixth Dozen in a Bundle; Assorted Colors.

FRAME SLEDS.



Per Dozen

No. 203—ROCK ELM, 36x12½ inches over all, 8 inches High, Three Bent Knees, Tinned Braces; Flat Iron Shoes; Painted Red; Top Board Handsomely Decorated, Weight per dozen about 70 lbs $10.80

One-half Dozen in a Crate; Assorted Colors.

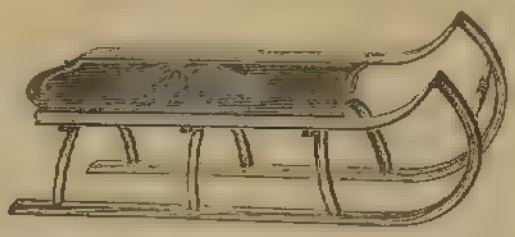
Per Dozen

No. 204—HARDWOOD, 33x12½ inches over all, 7 inches High, Two Bent Hardwood Knees, with Iron Braces; Iron Swan Heads; Flat Iron Shoes, Varnished and Striped, Top Board Painted and Ornamented, Weight per dozen about 54 lbs $12.00

One-sixth Dozen in a Bundle; Assorted Colors.

Per Dozen

No. 200—HARDWOOD, 33x12½ inches over all, 7 inches High; Two Bent Hardwood Knees; Flat Iron Shoes, Varnished, Top Board Painted, Weight per dozen about 48 lbs..... $6.00



Per Dozen

No. 202—HARDWOOD, 36x12½ inches over all; 7 inches High; Three Bent Hardwood Knees, Flat Iron Shoes, Varnished, Top Board Painted, Weight per dozen about 60 lbs $9.00

Per Dozen

No. 198—HARDWOOD; 30x11 inches over all, 6 inches High, Two Straight Hardwood Knees; Flat Iron Shoes, Varnished, Top Board Painted, Weight per dozen about 42 lbs $4.20

One-half Dozen in a Crate; Assorted Colors.

COMMERCIAL MOTOR CAR DEPARTMENT

Type XVIII Autocar

The Autocar Company of Ardmore, Pa., has entered the field of the commercial car, and has put on the market an entirely new line of cars. Fads and sensations, by the way of new models each year, have been dispensed with, and these new cars instead of being called 1909 Autocars will be Type XVIII cars following the policy of bringing the construction to a standard manufacturing basis.

Fig. 1. Three styles of Type XVIII Autocar commercial vehicles showing an enclosed delivery body at the left, an open car or depot bus at the right, while an open body truck is shown at the bottom. The 2-cylinder opposed motor is under the seat to give room for a large platform

Two styles of chassis have been designed—a long chassis with solid rubber tires and a shorter chassis with pneumatic tires. The long chassis is intended for light delivery work with 2000 pounds load capacity This chassis can be fitted with open or closed delivery bodies or with a twelve-passenger bus body. The shorter chassis is intended primarily for passenger work, and can be fitted with a town car, victoria, or station wagon body. For certain classes of light, quick delivery work it can be fitted with a small box body.

ACCESSIBILITY

In order to get a maximum size of body on the shortest possible wheel base, the motor is located under the driver's seat. This seat structure is separate from the body proper and either can be removed without the other. Accessibility to the motor has not been compromised by this location. Small doors at the side of the seat structure provide easy access to the spark plugs and valves. The seat itself is hinged and the whole structure may be thrown back as shown in the accompanying illustration whence any part of the motor can be reached without touching either the body proper or its load.

REMOVABLE POWER PLANT

The motor and transmission cases are mounted upon a pressed steel sub-frame, the motor being secured by four bolts through feet on the sides of the cylinders, and the transmission case by four bolts through its legs. The front cross member of the sub-frame has two arms bent up, one on each side, by means of which it is hung from brackets on the side members of the main frame, being secured by two large pins. The rear cross member of the sub-frame is a semi circular steel casting at the top of which is a large stud which in turn is secured to a cross mem-

ber of the main frame by means of a nut. By this means the power plant is supported on three points, and can be easily removed by disconnecting the inlet, exhaust, and water pipes, the two pins and nut. The removable power plant eliminates the necessity of spare cars in any delivery service, as an extra power plant only need be substituted while repairs are being made on the original one. Besides the whole power plant being removable, either motor or transmission and clutch can be removed without removing the sub-frame.

THE MOTOR.

The motor is of the two cylinder opposed type, 4¾-inch bore by 4½-inch stroke, and is rated at 18 H. P. (A. L. A. M.) The cylinders are of a fine grade of gray iron, rough bored, annealed, finish bored, ground to size and finally lapped in with pistons and rings. By means of this expensive method of manufacture, a permanent perfect fit is assured. The valves are both on the upper side of the cylinder and can be readily removed. They are both mechanically operated from the same cam shaft and are interchangeable. The valve heads are of such shape that warping is reduced to practically zero, and that in case of a head cracking it cannot enter the space traversed by the piston. The pistons are of the same grade of gray iron as the cylinders and are accurately ground to size before the lapping operation. They are fitted with three 5-16-inch piston rings, all located above the piston pin. The piston pin is hardened and ground to size and is held in place by means of a snub and spring, a method used exclusively in Autocars for the last few years. The connecting rods are of high carbon steel, drop forged and heat treated. The piston pin and crank pin bearings are of bronze. The crank pin bearing is adjustable, the cap being held in place by means of two 9-16-inch bolts. The crankshaft is also of high carbon steel, drop forged and heat treated. Its journals are accurately ground to size. It is mounted on extra large Hess-Bright ball bearings of the silent type, and carries two flywheels, one on each end. The front flywheel has fan blades cast in it, and takes the place of a belt driven fan. In the long chassis this flywheel carries a throttle governor which limits the speed of the motor to 1300 R. P. M. The rear flywheel carries the clutch. By means of these two flywheels, which are counterweighted to produce a moment opposed to the unbalanced moment of the pistons and connecting rods, the resulting balance of the motor is as nearly perfect as can be obtained.

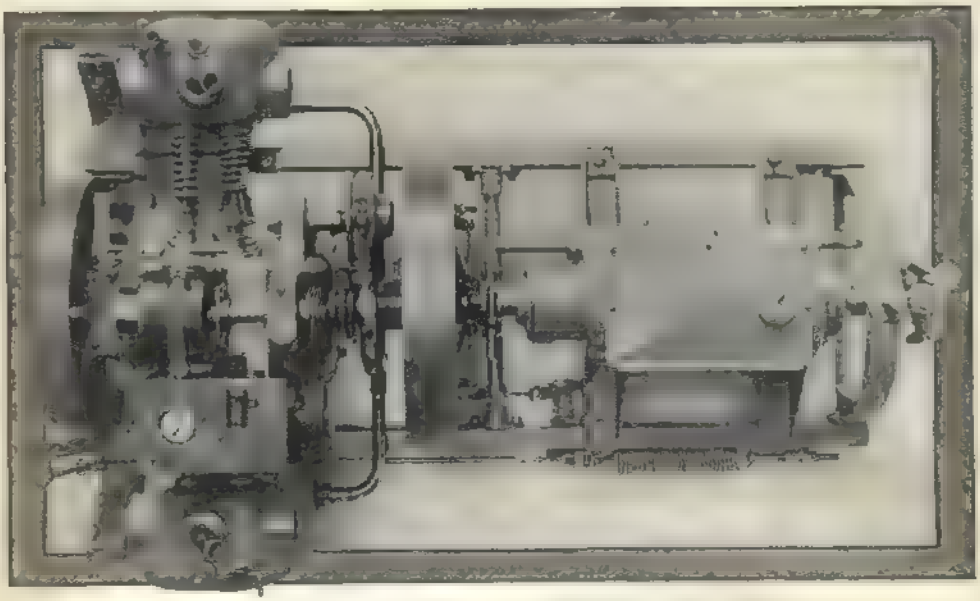


Fig. 3. Plan of the Type XVIII Autocar power plant. The cylinders are 4¾x4½ rated at 18 H. P. (A. L. A. M.) Two flywheels are used, the forward one containing fan blade spokes. Note the accessible position of the magneto and force feed lubricator. The sub-frame carrying the plant is supported by the two arms at the front and at a single point at the rear, giving a flexible 3-point suspension.

The crank case is split horizontally in two parts. The lower part carries the cylinders, crank shaft, water pump and cam shaft, while the upper part carries the push rods and guides, the magneto, the oiler, and a gear for driving the water pump. This part of the case is easily removable, carrying its parts with it, and giving access to the crank pin bearings without dismantling the motor. The magneto is standard equipment and is attached to the top of the crank case by means of two winged bolts. It can be removed and replaced without altering the timing. This magneto is of the low tension type, delivering its current to an induction coil mounted

on the side of the seat structure. Thus a dual system of ignition is provided. The oiler is of the force feed type, and delivers the oil through a sight feed to the crank case whence the cylinders, cam shaft, crank pins, etc., are lubricated by splash. The oiler is held in place by a single winged bolt and dowel pins, being secure and at the same time easily removable.

The clutch is of the same type, but with several detail improvements, as has been used for the last several years by the Autocar Company. It consists of a bronze floating ring provided with cork inserts, mounted on four sliding keys on the inside of the rim of the flywheel and rotating with the latter. Two steel rings are mounted on the clutch shaft and clamp the bronze ring when the clutch is engaged Engagement is accomplished by a sliding trunnion ring and four toggle links. This trunnion ring is operated from the clutch pedal shaft through an auxiliary shaft and a yoke. The forward end of the clutch shaft is centered in a bearing in the rear end of the crankshaft.

THE CHANGE GEAR.

The transmission is of the progressive sliding gear type, the gears being of the same size as in the present Type XIV, 28 H. P. Autocar. The countershaft is located below the main shaft, all shafts rotating on Timken roller bearings. These bearings are mounted in caps which are screwed in the ends of the case. The case itself is cast in one piece with two hand hole openings and all shafts and gears can be removed through the large hand hole on the top without removing the case from the sub-frame. The other hand hole opening permits the adjustment of the gear shift fork. The sliding train operates on the squared main shaft and provides three forward speeds and one reverse, high speed being direct drive through the transmission.

The power is transmitted from the gear case to the rear axle through two universal joints and a drive shaft.

DOUBLE REDUCTION REAR AXLE

The rear axle contains a double gear reduction. The bevel pinion connected at the end of the drive shaft drives a large bevel gear on a short transverse jack shaft. From this shaft the drive is transmitted to the differential housings by means of a pair of large spur gears. The bevel pinion shaft and jack shaft run on Timken roller bearings which are mounted in caps screwed into the axle housing, and not only bearing adjustment but also the adjustment of the meshing of the bevel gears is provided for by this means. One end of the jack shaft extends through the housing, and has the emergency brake drum mounted on it. By means of this double gear reduction a large gear ratio between the drive shaft and rear axle, such as is necessary for commercial work, can be obtained without the necessity of decreasing the size of the bevel pinion to such an extent that the liability of stripping the teeth becomes likely Moreover, in the same housing different combinations of the spur gears give a range of rear axle ratios of from 3.71 to 5.57 to 1. The live axles are heavy and are provided with squared ends. The square on the inner end slips into the differential gear, and that on the outer end drives the wheel which is secured to it. These axles are mounted on Hyatt roller bearings at their inner ends and on Timken roller bearings at their outer ends. The thrust of the wheels on a curve is taken through the two axles to the Timken bearing on the inner side of the curve. The axle housing is of malleable steel throughout, and is in five pieces. The spring seats and brake

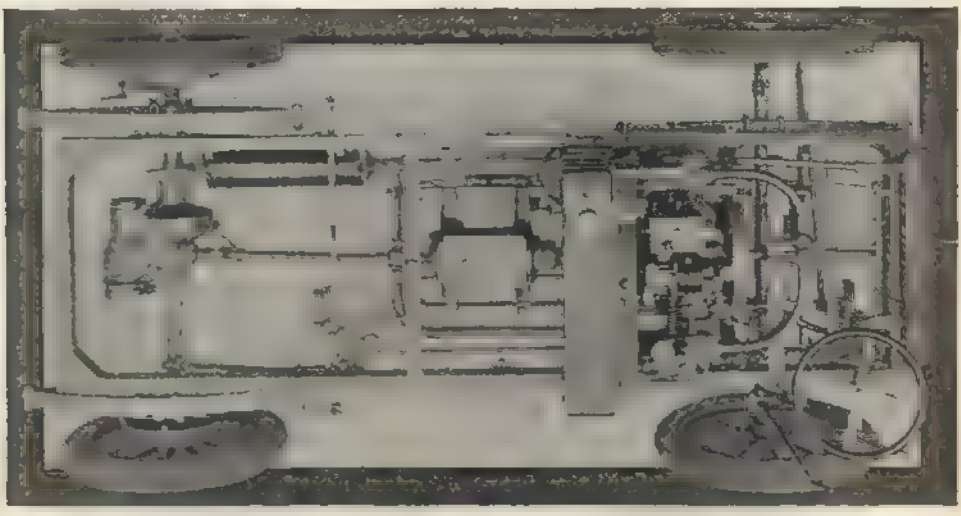


Fig. 3. Plan of Autocar Type XVIII chassis showing the location of the elements. A long chassis fitted with solid tires and having 87 inches wheel base and a short chassis of 85 inches wheel base with pneumatic tires are supplied

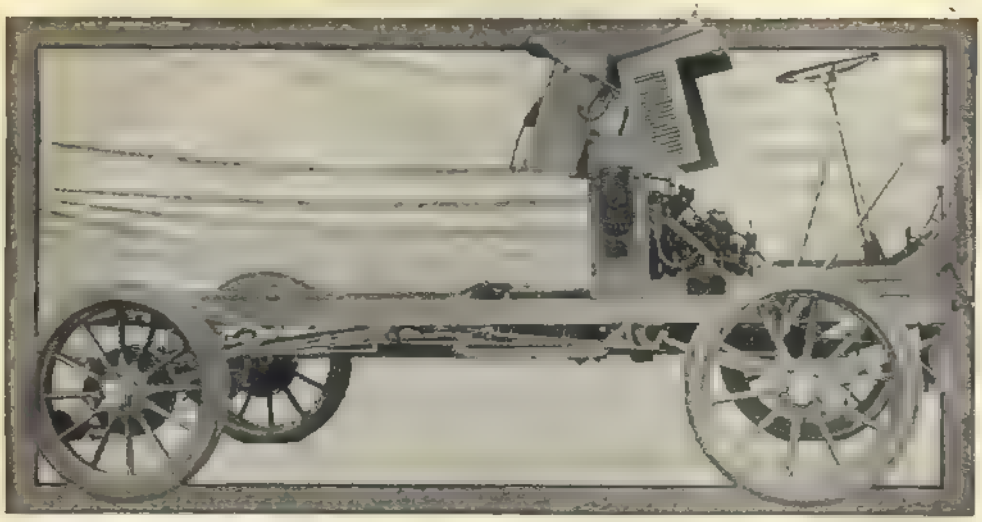


Fig. 4. Side view of Type XVIII Autocar chassis showing the raised hood and tilted seat exposing all parts of the engine. The frame is of armored wood, control as detailed in text

supports are integral with the tubes and no parts are riveted or brazed. The portion of the housing carrying the jack shaft can be removed and all gears with the single exception of the large spur gear on the differential housing removed without taking the axle from under the car. Also either live axle may be removed without removing the axle housing

The front axle is tubular with the Elliott type of steering knuckles. The spindles carry Timken roller bearings on which the wheel hubs are mounted. The cross link connecting the two knuckles is in front of the axle and the steering link lies transversely across the car connecting the steering gear arm to the knuckle arm on the opposite side. Both the spindle bolt bearings and all the steering link bearings are bushed with hardened steel bushings, which can be replaced when worn.

One pedal controls the clutch, and the other the service brakes on the hubs of the rear wheels, while the side hand levers control the gear shift and emergency brake. When the brake lever is applied the clutch is automatically released before the brake tension is produced. The steering gear is of the bevel gear and sector type. Two short levers above the wheel control the spark and throttle.

The radiator is hung from the front cross member under the dash, and the gasoline tank is supported back of the driver's seat.

The frame is of armored wood, being constructed of pressed steel channels reinforced with wood members.

The front springs are semi-elliptic, and the rear springs are full elliptic. They are of different weights to provide for the different body weights and services of the two lengths of chassis.

The wheels are of the artillery type and constructed from selected hickory. They are bolted to the malleable steel hubs, and are interchangeable on either front or rear hubs. On the short chassis they are equipped with Goodyear detachable rims and

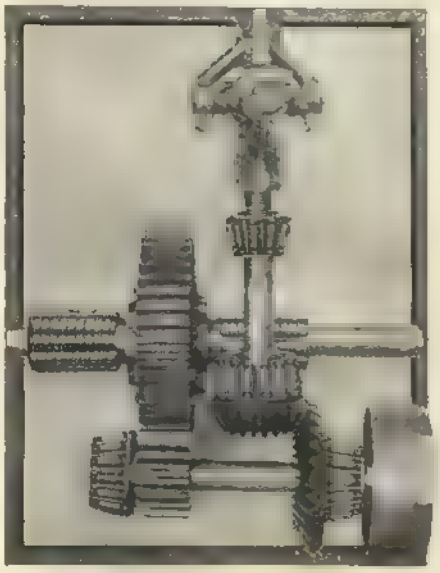
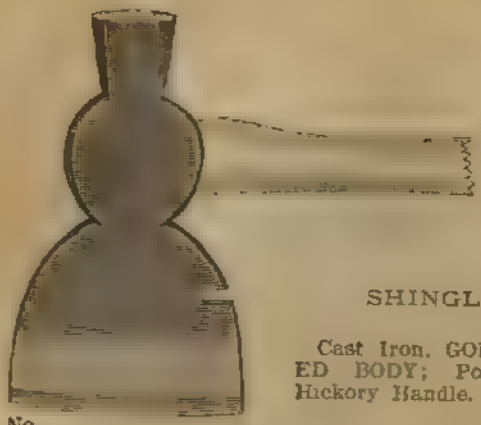


Fig. 5 Double reduction gears of Type XVIII Autocar rear axle This construction makes it possible to obtain the large gear reduction necessary between the driving shaft and the rear axle on trucks without reducing the bevel pinion to such small diameter as to weaken the tooth construction.

32 x 4 pneumatic tires and on the long chassis with 32 x 3½ solid tires. The short chassis has a wheel base of 85 inches accommodating a body platform 48 inches wide and 68 inches to 90 inches long if so desired. The long chassis has a wheel base of 97 inches, accommodating a body platform of 48 inches wide, and 80 inches to 100 inches long.

HATCHETS.

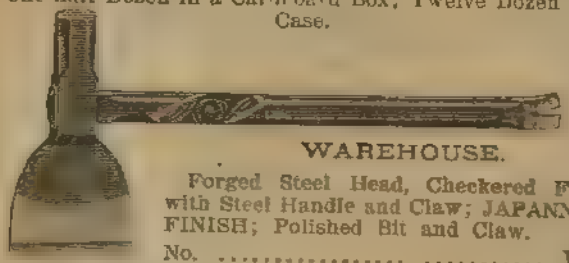


SHINGLING.

Cast Iron, GOLD BRONZED BODY; Polished Bit; Hickory Handle.

No.	26
Width of Cut, inches	3½
Length over all, inches	12
Weight per dozen about, lbs.	15
Per dozen	$5.00

One-half Dozen in a Cardboard Box; Twelve Dozen in a Case.

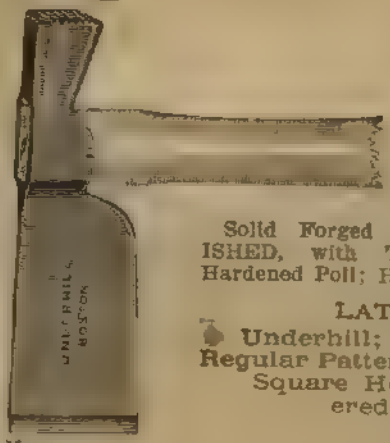


WAREHOUSE.

Forged Steel Head, Checkered Face, with Steel Handle and Claw; JAPANNED FINISH; Polished Bit and Claw.

No.	W2
Width of Cut, inches	3⅞
Length over all, inches	13½
Weight per dozen about, lbs.	48
Per dozen	$15.00

One-half Dozen in a Wood Box; Six Dozen in a Case.



Solid Forged Steel, FULL POLISHED, with Tempered Bit and Hardened Poll; Hickory Handle.

LATHING.

Underhill; Boston Star. Regular Pattern, Eight Scores, Square Head, Checkered Face.

No.	A
Width of Cut, inches	2¼
Length over all, inches	12
Weight each, without Handle, ozs.	10
Weight per dozen about, lbs.	15
Per dozen	$20.00

LATHING.

Chicago Pattern; Nine Scores; Large Square Head; Checkered Face.

No.	C
Width of Cut, inches	2 1/16
Length over all, inches	12½
Weight each, without Handle, ozs.	15
Weight per dozen about, lbs.	19
Per dozen	$22.00

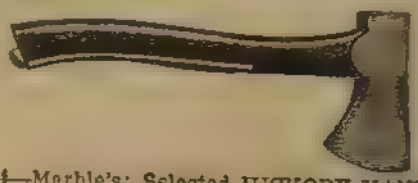
One-half Dozen in a Cardboard Box; Six Dozen in a Case

MARBLE'S PATENT SAFETY SPORTSMEN'S.

Solid Crucible Steel Blade Tempered and Polished, with Steel Guard, Lined with Lead, Fastened to Handle with Spring Hinge; Guard Folds into Handle When Not in Use.

Per Dozen

No. M2—Marble's; STEEL HANDLE, with Engraved Hard Rubber Grip; Width of Cut 2½ inches; Length over all 11 inches; Weight per dozen about 18 lbs. $30.00



Per Dozen

No. M4—Marble's; Selected HICKORY HANDLE. Width of Cut 2⅜ inches; Length over all 11½ inches; Weight per dozen about 19 lbs. $18.00

No. M5—Marble's; Selected HICKORY HANDLE; Width of Cut 2½ inches; Length over all 11 inches; Weight per dozen about 15 lbs. 18.00

One-sixth Dozen in a Cardboard Box; One Dozen in a Case.

HATCHET SHEATHS.

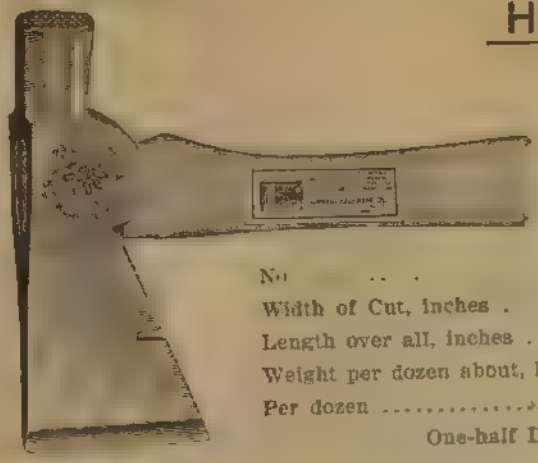
Per Dozen

No. S 2—Sheaths; BROWN CANVAS; Leather Trimmed; for Hatchets Nos. M/2, M/4, M/5; Width 4½ inches; Length over all 11 inches $3.50

Packed Loose.

TRADE MARK: "OAK LEAF", REGISTERED.

HATCHETS.



New Process Converted Steel, Hardened, Polished and Etched; Handled with Extra Grade White Hickory Handle and Fastened with our GRELLNER PATENT WEDGE.

OAK LEAF*, Tobacco, with Checkered Face.

	MT2
No.	[illegible]
Width of Cut, inches	[illegible]
Length over all, inches	14½
Weight per dozen about, lbs.	27
Per dozen	$8.00

One-half Dozen in a Cardboard Box; Two Dozen in a Case.

BLACK EAGLE, ALL STEEL.

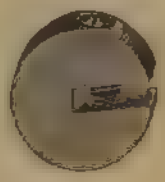
In Three Pieces, Riveted Together.

Blade Stamped from Good Quality Forged Steel; Polished Cutting Edge, Well Sharpened; Handle Stamped in Tubular Form from Heavy Sheet Steel, and Riveted to Head with Two Rivets; Steel Head or Poll; Body and Handle Black Enameled Finish.

	Per Dozen
No. BFS 2—SHINGLING. Plain Head, Stamped from Sheet Steel. Width of Cut 3½ inches. Length over all 11¾ inches. Weight per dozen about 18 lbs.	$6.00
No. BEC2—CLAW. Regular Claw Head, Drop Forged Steel, with Polished Face. Width of Cut 3½ inches. Length over all 11¾ inches. Weight per dozen about 19 lbs.	$7.20

One-half Dozen in a Cardboard Box; Twelve Dozen in a Case.

SHINGLE GAUGES.



FULL SIZE
Showing Gauge Only.

Showing Gauge in use.

Polished Steel, ¾ inch Diameter, 7/16 inch Thick, with Slot ⅛ inch Wide and 7/16 inch Deep. Slotted Headless Cup Point Screw.

	Per Dozen
No. SH—SHINGLE GAUGES. Suitable for use with all Thin Blade Haines or Underhill Pattern Hatchets. Weight per dozen about 14 lbs.	$3.00

NOTE—No. SH Shingle Gauges, when attached to a Hatchet Blade, as shown in the above cut, afford a convenient means of measuring or gauging the lap of Shingles, etc.

One Dozen in a Cardboard Box.

TRADE MARK: "OHIO FALLS," REGISTERED.

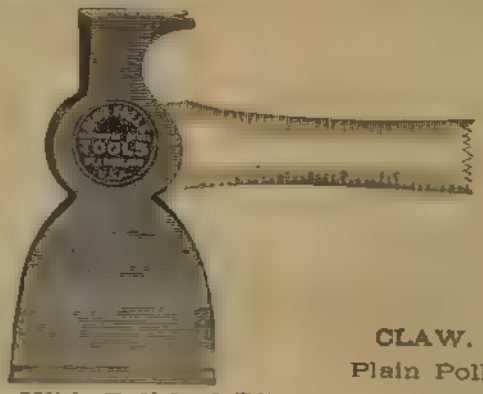
Good Quality.
Good Material.
Cheap in Price.

HATCHETS.

OHIO FALLS*.

New Process Converted Steel, with Hardened Bit; Hickory Handle. Not Recommended, except for light use. Not Warranted.

SHINGLING.
Plain Poll.



CLAW.
Plain Poll.

GOLD BRONZED BODY, With Polished Bit.

Nos	08/1	08 2
Width of Cut, inches	3½	4
Length over all, inches	12¾	14
Weight per dozen about, lbs	21	24
Per dozen	$8.00	8.50

Nos.	0C1	0C2
Width of Cut, inches	3½	4
Length over all, inches	13	13½
Weight per dozen about, lbs	22	24
Per Dozen	$9.00	9.50

HALF.
Plain Poll.

LATHING.
Checkered Face.

GOLD BRONZED BODY, With Polished Bit.

Nos	0H1	0H2
Width of Cut, inches	3¼	3⅝
Length over all, inches	12¼	13½
Weight per dozen about lbs	21	23
Per Dozen	$8.50	9.00

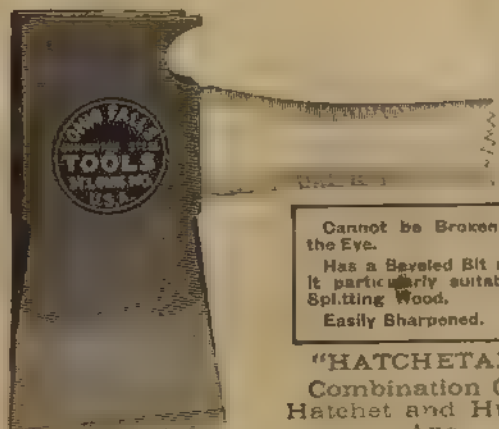
No.	0L1
Width of Cut, inches	2¼
Length over all, inches	12
Weight per dozen about lbs.	19
Per Dozen	$8.00

One-half Dozen in a Cardboard Box, Six Dozen in a Case.

TRADE MARK "OHIO FALLS," REGISTERED.

HATCHETS.

OHIO FALLS*—BRONZED.



New Process Converted Steel; GOLD BRONZED BODY, with Hardened and Polished Bit; Hickory Handle.

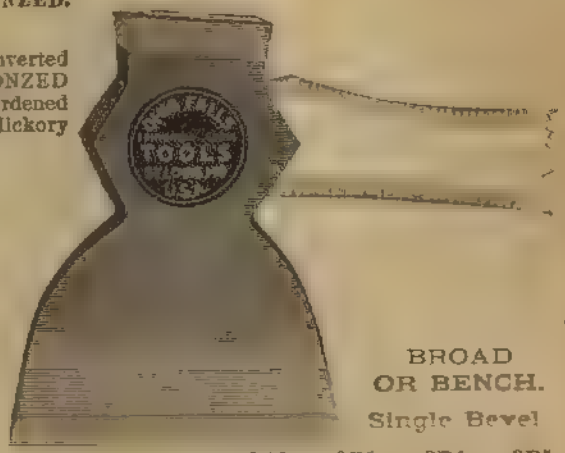
Cannot be Broken under the Eye.
Has a Beveled Bit making it particularly suitable for Splitting Wood.
Easily Sharpened.

"HATCHETAXE."

Combination Claw Hatchet and Hunters' Axe.

No.	H2
Width of Cut, inches	3
Length over all, inches	13¾
Weight per dozen about, lbs.	37
Per dozen	$9.50

One-half Dozen in a Cardboard Box, Two Dozen in a Case.

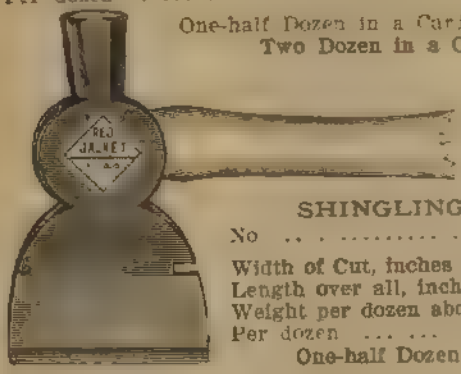


BROAD OR BENCH.

Single Bevel

Nos.	OB2	OB3	OB4	OB5
Width of Cut, inches	4½	5	5½	6
Length over all, inches	15	16	17¼	17
Weight per dozen about, lbs.	26	30	34	37
Per dozen	$11.50	13.00	14.50	16.50

One-half Dozen in a Cardboard Box; Six Dozen in a Case.



No. 3R.

RED JACKET*.

Cast Iron; PAINTED RED, with Polished Bit; Hickory Handle.

SHINGLING. Plain Poll.

No.	3R
Width of Cut, inches	3½
Length over all, inches	13
Weight per dozen about, lbs.	20
Per dozen	$5.00

CLAW. Plain Poll

No.	2R
Width of Cut, inches	3½
Length over all, inches	13
Weight per dozen about, lbs.	20
Per dozen	$5.00

One-half Dozen in a Cardboard Box; Twelve Dozen in a Case.

GERMANTOWN TOOL WORKS.

Solid Forged Steel; Solid Punched Box Eye; Tempered, Polished Bit and Polished Round Hardened Poll; Octagon Neck; FIRE BRONZED, BODY; Hickory Handle.

SHINGLING.

Nos.	$16½	$17
Size	1	2
Width of Cut, inches	3⅝	3⅞
Length over all, inches	12½	13
Weight per dozen about, lbs.	22	25
Per dozen	$13.00	13.50

HALF.

Nos.	$17½	$18
Size	1	2
Width of Cut, inches	3¼	3½
Length over all, inches	12¾	13
Weight per dozen about, lbs	22	27
Per dozen	$13.50	14.00

One half Dozen in a Cardboard Box, Six Dozen in a Case.

No. 986 GLASS LAMP ASSORTMENT.

Contains 2/3 Dozen Each of the Decorated Clinch on Collar Sewing Lamps Shown Below; Without Burners or Chimneys

No. 2 Burners and Chimneys Fit all Lamps in this Assortment.

WE MAKE NO CHARGE FOR PACKING.

24 LAMPS Assortment will not be broken.

Complete Assortment $11.50.

Height to Top of Collar 8½ inches, No. 2 Collar.

Each

No. 986/1 ..... $0.50

Height to Top of Collar 8½ inches; No. 2 Collar.

Each

No. 986/2 ..... $0.50

Height to Top of Collar 8½ inches; No. 2 Collar.

Each

No. 986/3 ..... $0.50

ALL No. C SIZE

One Complete Assortment in a Barrel; Weight per Assortment about 75 lbs.

No. 997 GLASS LAMP ASSORTMENT.

Contains ¼ Dozen Each of the Five Decorated Plaster Collar Lamps Shown Below; With Burners and Chimneys Decorated to Match; Assorted Colors; Brown and Blue.

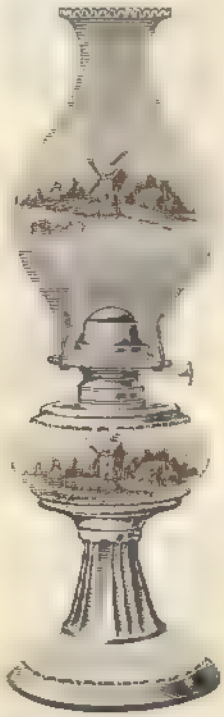
15 LAMPS Assortment will not be broken.

Complete Assortment **$14.00**

ANILINE DECORATIONS.

Height to Top of Chimney 20¼ inches; No. 2 Collar. Each
No. 997D $1.10

Height to Top of Chimney 17¼ inches; No. 1 Collar. Each
No. 997A $0 75



Height to Top of Chimney 19 inches; No. 2 Collar. Each
No. 997CS—SEWING $1 00

WE MAKE NO CHARGE FOR PACKING.

Height to Top of Chimney 19 inches; No. 2 Collar. Each
No. 997B $0.90

Height to Top of Chimney 19¾ inches; No. 2 Collar. Each
No. 997C..... $1.00

One Complete Assortment in a Barrel; Weight per Assortment about 75 lbs.

No. 991 GLASS LAMP ASSORTMENT.

Contains ⅓ Dozen Each of the 6 Clinch-on Collar Sewing Lamps Shown Below, Without Burners or Chimneys; All No. C Size.

No 2 Burners and Chimneys Fit all Lamps in this Assortment

24 LAMPS Assortment will not be broken.

Complete Assortment $12.00

WE MAKE NO CHARGE FOR PACKING.

Height to Top of Collar 9 inches, No. 2 Collar.

No. 991/1..... Each $0.50

Height to Top of Collar 8½ inches; No. 2 Collar.

No. 991/2. .. .... Each $0.50

Height to Top of Collar 8½ inches; No. 2 Collar.

No. 991/3 ... Each $0.50

Height to Top of Collar 8½ inches; No. 2 Collar.

No. 991/4..... Each $0.50

Height to Top of Collar 7½ inches; No. 2 Collar.

No. 991/5..... Each $0.50

Height to Top of Collar 8½ inches; No. 2 Collar.

No. 991/6..... Each $0.50

One Complete Assortment in a Barrel; Weight per Assortment about 85 lbs.

No. 991 GLASS LAMP ASSORTMENT.

Contains ⅓ Dozen Each of the 6 Clinch-on Collar Sewing Lamps Shown Below; Without Burners or Chimneys; All No. C Size.

No. 2 Burners and Chimneys Fit all Lamps in this Assortment.

24 LAMPS Assortment will not be broken

Complete Assortment **$12.00**

WE MAKE NO CHARGE FOR PACKING.

Height to Top of Collar 9 inches, No. 2 Collar.

No. 991/1..... Each $0.50

Height to Top of Collar 8½ inches; No. 2 Collar.

No. 991/2..... Each $0.50

Height to Top of Collar 8½ inches; No. 2 Collar.

No. 991/3..... Each $0.50

Height to Top of Collar 8½ inches; No. 2 Collar.

No. 991/4..... Each $0.50

Height to Top of Collar 7½ inches; No. 2 Collar.

No. 991/5..... Each $0.50

Height to Top of Collar 8½ inches; No. 2 Collar.

No. 991/6..... Each $0.50

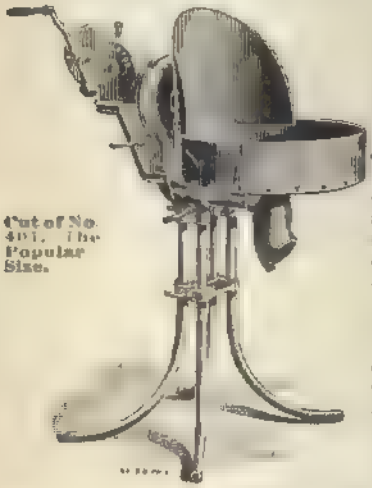
One Complete Assortment in a Barrel; Weight per Assortment about 85 lbs.

FORGES

[illegible] Series Forges are all equipped with our 400 Champion Blower. The 400 Champion Steel Blower [illegible] blower and [illegible] blast [illegible] and power [illegible] equipped with the highest [illegible] and having [illegible] Water jacket forges are [illegible] ordered as [illegible] and [illegible] and [illegible] and [illegible] and [illegible] bearings.

THE CHAMPION STEEL RIVET FORGE

Made with Adjustable Ball Bearings only



Cut of No. 401, the Popular Size.

This forge is adapted for Government use, elevated and steam railroads, bridge and tank builders, miners and prospectors, boiler repairers, or any portable work requiring compactness and lightness, with a [illegible] If necessary it will produce blast to weld 3½ to 4 inch iron in [illegible] minutes. The crank to produce the blast can be turned either way.

Regular and continuous positive blast.

No.	Style Forge	Hearth Inches	[illegible]	[illegible]	Weight	[illegible]
401	[illegible]	18	9	9½	[illegible]	$32 00
402	[illegible], with half hood	18	9	9½	[illegible]	[illegible]
403	[illegible] closed hood	18	9	100	40 00	
401	[illegible] with shield	22	9	100	40 00	
402	[illegible] ers', with half hood	22	9	100	43 00	
403½	Toolmakers', [illegible]	22	9	100	45 00	
401¼	Rivet with shield	24	10	120	45 00	
402¼	Toolmakers', with half hood	24	10	120	48 00	
403¼	[illegible] hood	24	10	120	50 00	

Above [illegible] in stock. Other styles and sizes furnished very promptly from factory.

THE CHAMPION STEEL HORSESHOERS' AND BLACKSMITHS' FORGE

Made with Adjustable Ball Bearings Only

No. 408 With Half Hood

No. 408 Champion Steel Horseshoers' Forge with half hood. Hearth, 30x36 inches, height, 30 inches, fan 12 inches in diameter, weight, 225 lbs. $65 00
With water tank extra 5 00

No. 409 Champion Steel Horseshoers' Forge. Hearth 30x40 inches, height, 30 inches, fan 12 inches in diameter, weight, 250 lbs. 70 00
With water tank extra 5 00

No. 409½ [illegible] Horseshoers' Forge with half hood [illegible] No. 408 forge in its entire construction, except that it is 4 inches longer in the hearth

No. 404 Champion Steel Rivet Forge with shield. Hearth 24x24 inches, height 30 inches, fan 9 inches in diameter, weight 190 lbs. 45 00

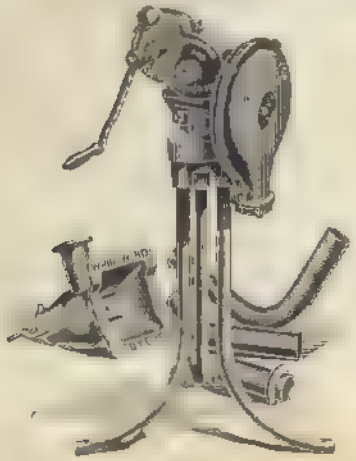
No. 406 Champion Steel Rivet Forge with half hood. Hearth 24x24 inches, height 30 inches, fan 9 inches in diameter, weight 190 lbs. 49 00

No. 406 Champion Steel Blacksmiths' Forge with shield. Hearth, 30x30 inches, height 30 inches, fan 10 inches in diameter, weight, 150 lbs. 55 00
With water tank, extra 5 00

No. 407 Champion Steel Blacksmiths' Forge with half hood. Hearth 30x30 inches, height, 30 inches, fan 10 inches in diameter, weight 175 lbs. 60 00
With water tank, extra 5 00

No. 400 SERIES CHAMPION STEEL BLACKSMITH BLOWERS

Made with Adjustable Ball Bearings only. High Speed Spiral Gearing. Will Produce White Heat Blast

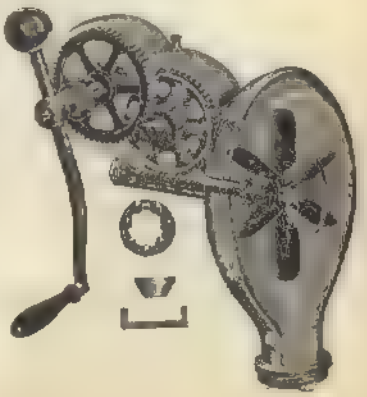


In every respect to a blast produced from [illegible] Machinery is all made from best tool steel and phosphor bronze, machined and cut from solid metal, and fitted with the precision and nicety of a watch, all enclosed in an oil-tight casing. It has no belts or friction and is fitted up all through with ball bearings. The blower is very compact, can be taken apart for transportation and again set up in a very few moments. It has an adjustment whereby it can be raised or lowered to suit the height of all size mechanics. The blast is produced by turning the crank either direction.

No. 400 Weight 100 lbs. Fan 12 inches in diameter. With Tuyere iron and piping complete ..... Each, $37 00

No. 420 Weight 145 lbs. Fan 14 inches in diameter. With extra heavy Tuyere iron and piping complete ..... Each, 45 00

No. 421 Weight 150 lbs. Fan 16 inches in diameter. With extra heavy Tuyere iron and piping complete ..... Each, 48 00



No. 40

ROYAL STEEL FORGES AND BLOWERS

Phosphor bronze and steel cut gears. All straight. No spiral or worm gears.

Noiseless. Easy to operate. Crank turns both ways. Gear case oil tight and dust proof. Gears run in continuous bath of oil.

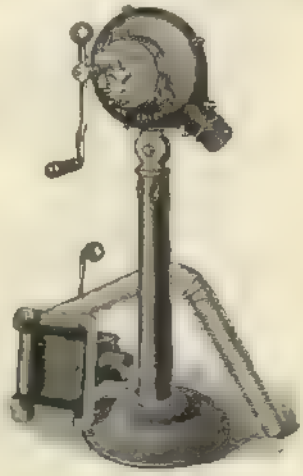
No. 15

[illegible] Rivet Forge 18-inch hearth height 30 inches; weight 90 lbs. $35 00
No. [illegible] Tool Maker's Forge, same as No. 60 except [illegible] weight 95 lbs. 38 00
No. [illegible] Tool Maker's Forge, same as No. 60 except [illegible] weight, 100 lbs. 40 00
No. [illegible] Rivet Forge with shield, 22-inch hearth; height, 30 inches, weight, 95 lbs 40 00
No. 50. Tool Maker's Forge, same as No. 40 except half hood, weight 100 lbs. 43 00
No. 55. Tool Maker's Forge, same as No. 40 except closed hood, weight, 110 lbs 15 00

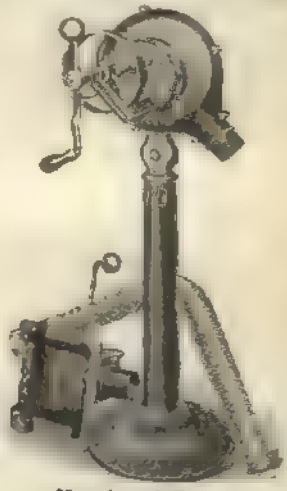
Royal Steel Blacksmith Forge for [illegible] center blast. 12-inch fans. Height 30 inches. Crank turns backwards or forwards. Will heat 4-inch iron.

No. 10. Royal Steel Forge, equipped with Royal Western Chief patent smoke conveyor. Hearth, 30x40 inches; length over all, 48 inches. Without tank, weight 225 lbs $70 00
With tank, weight 255 lbs. 75 00
No. 15. Same as No. 10 except hood. See cut. Without tank weight 215 lbs 65 00
With tank weight, 245 lbs. 70 00
No. 20. Hearth 30x36 inches length, over all 44 inches. Same construction as above, but with plain shield. Without tank, weight 190 lbs ..... [illegible]
With tank, weight 220 lb. ..... [illegible]
No. 30. Royal Steel Forge, equipped with Royal Western Chief patent smoke conveyor. Hearth, [illegible] inches; length over all, 44 inches. Without tank weight 200 lbs ..... [illegible]
With tank, weight [illegible] ..... [illegible]
No. [illegible] Same as above except hood. Without tank weight [illegible] lbs ..... [illegible]
With tank weight [illegible] ..... [illegible]

No. 41



Hand



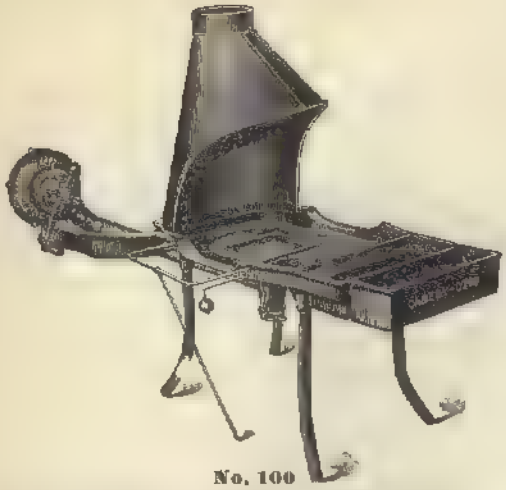
Hand and Power

Royal Steel Rivet Forge, especially for bridge and structural workers, the ring base giving [illegible] foundation on skeleton work. Same blower and equipment as Nos. 60, 70 [illegible]

No. 41. Royal Steel Rivet Forge 22-inch hearth, 10-inch fan, weight, 100 lbs $43 00
No. 51. " " " " 18 " " 10- " " " 95 " 38 00

ROYAL BLACKSMITHS' BLOWERS—FOR HAND OR POWER

[illegible] Noiseless, easy [illegible] Height 47 inches
[illegible] $28 00
Royal [illegible] weight 14[illegible] lbs. [illegible] ..... 3[illegible] 00



No. 100

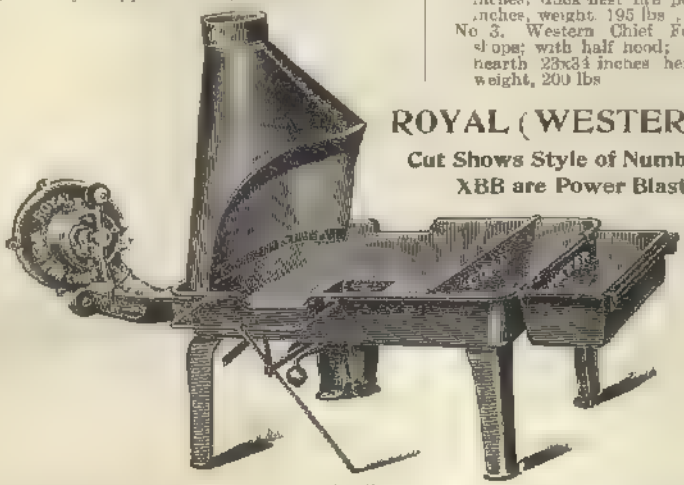
No 100 Royal Western Chief Forge. For heavy work with half hood; cast iron hearth, 31½x45½ inches height 30 inches, fan [illegible] inches, with one tank; weight [illegible] lbs $[illegible]
With extra tank; weight, 325 lbs [illegible]
No 200. Royal Western Chief Forge. With improved smoke conveyor; cast iron hearth 31½x45½ inches, height 30 inches fan 12 inches; with one tank, weight, 300 lbs 55 00
With extra tank; weight 330 lbs 60.00
No 102 Royal Western Chief Forge. For well-drillers, quarries and outdoor work; with half hood, ducknest fire pot hearth, 23x34 inches; height 30 inches, fan, 10 inches, ... 38 00
Forges under above name have cast iron hearths, with Royal blower attachment Always shipped without extra tank unless so ordered.

No. 1

No. 1 Western Chief Forge. Adapted for largest heaviest work; with cast iron hearth 31½x45½ inches, height [illegible] inches, fan, 14½ inches length over all [illegible] inches with one tank, weight, 315 lbs . [illegible]
With extra tank; weight, 345 lbs. [illegible]
No 1½ Western Chief Forge. Equipped with power attachment, size pulleys, 7½x1¾ inches, should run [illegible] cast iron hearth, 31½x45½ inches height, 30 inches fan 14½ inches; length over all, 53 inches; with half hood, with one tank weight, 315 lbs. 53 00
With extra tank, weight, 345 lbs [illegible] 00
With one tank and hand power; weight, [illegible] lbs [illegible]
With extra tank, also hand power; weight 60 lbs [illegible]
No 2. Western Chief Forge. For contractors and bridge builders; with shield, cast iron hearth 23x[illegible] inches, duck-nest fire pot; height, 30 inches, fan [illegible] inches, weight 195 lbs 36 00
No 3. Western Chief Forge For small blacksmith shops; with half hood; duck-nest fire pot, cast iron hearth 23x34 inches height 30 inches, fan 12 inches, weight, 200 lbs 40 00

ROYAL (WESTERN CHIEF) FORGES

Cut Shows Style of Numbers 8 and 9. Styles BB and XBB are Power Blast without Hand Blower



No. 8

With Hand Blower

No. 8. Royal Western Chief Forge. For heavy blacksmith work; with half hood; height, 26 inches, cast iron hearth [illegible] inches [illegible] inches plain, no tank, no hood weight [illegible] lbs $6[illegible] 00
With tank, no hood weight, [illegible] lbs 7[illegible] 00
With hood; no tank, weight [illegible] lbs 7[illegible] 00
With extra tank and hood, weight [illegible] 7[illegible] 00

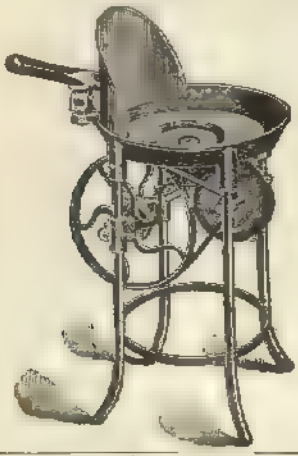
No 9. Royal Western Chief Forge. For large plow shops; with half hood; height 26 inches cast iron hearth 38x50 inches; over all 38x60 inches fan 12 inches, plain no tank; no hood, weight, 500 lbs 70.00
With tank; no hood weight, 565 lbs . . . 75 00
With hood no tank; weight 515 lbs 77 00
With tank and hood; weight 580 lbs 80 00

Stationary Blast

Size BB. Western Chief Forge. For shops supplied with power blast half hood; cast iron hearth 31½x51 inches; solid fire pot with side and center blast, tuyere ball, height, 26 inches, plain; no tank, no hood weight 375 lbs. $35 00
With tank; no hood; weight [illegible] lbs [illegible] 00
With hood; no tank, weight, [illegible] lbs [illegible] 00
With tank and hood, weight, [illegible] lbs [illegible] 00
Size XBB. Western Chief Forge For shops supplied with power blast; half hood, cast iron hearth 38x50 inches, height, 26 inches; solid fire pot side and center blast, tuyere ball, plain, no tank no hood, weight, [illegible] lbs 40 00
With tank, no hood; weight, 505 lbs [illegible] 00
With hood, no tank; weight, 455 lbs. . . [illegible] 00
With extra tank and hood weight, 520 lbs. 50 00

AGRICULTURAL LEVER FORGE

For Farmers and All Kinds of Light Repairing Work



No	Style Forge	Hearth Inches	Pan Inches	Wt. Lbs	Price Each
50	With Shield	18	8	65	$14 00
51	" Half Hood	18	8	70	16.00

THE GUNNELL PNEUMATIC FORGE

Will heat twenty rivets at once, and easily two hundred an hour, thus allowing you to work riveting machine at utmost capacity. Consumes only two cubic feet of air per minute and weighs fifty pounds.

Consists of hollow cylinder above the forge fire, which is filled with fuel and feeds down in the same manner as self-feeding stove A patent draft inducer provides a steady supply of air, and the forge pan is so arranged that the fire can be revolved thus enabling the operator to reach any rivet in the fire without walking around the forge

The Gunnell

Price each $25.00

THE STAR PORTABLE BELLOWS FORGE

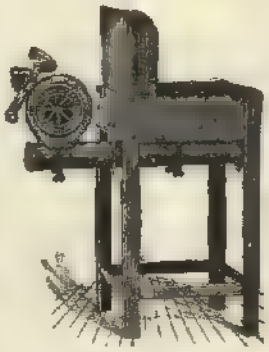
A Very Popular Forge with Bridge Builders

Simple in construction, easily operated, has no gears or belts to get out of order

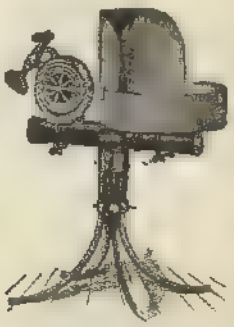
Hearth, 19 inches
Height, 30 "
Weight, 100 pounds.

No. 40. Price each....$40.00

THE CUMMINGS PORTABLE FORGE



Style of B., C. and D.



Style of A. and E.

The chief advantages of the forge are its lightness, strength and portability. Strong blast; easily maintained

No	Hearth, Inches	Height, Inches	Weight, Lbs.	Price Each
A	18 Dia	30	90	$35.00
E.	24	30	180	65 00
B.	18x18 Dia	32	135	40 00
C	24x24 "	32	155	45 00
D	30x30 "	30	220	75 00

Can be taken apart and taken into awkward places, such as in a fire-room of a steamship, down a mine, or can be conveniently packed up in a small space and carried in the hand or on muleback over mountain roads

Size "A." is the popular size of this forge
Sizes B., C. and D have square hearth

CHAMPION BLAST GATES

2 inch iron..		each, $1.00	10 inch iron		each $ 5 00
2½ " "		" 1.25	12 " "		" 6 50
3⅛ " "		" 1.50	14 "		" 8 00
4¼ " "		" 2.00	16 "		" 12 00
5 " "		" 2.25	18 "		" 16 00
6⅛ " "		" 2.50	20 "		" 18 00
8¼ " "		" 3.50	24 "		" 21 00

Above are outside measurements.

COMMUNITY SILVER

CLASSIC

THERE IS SAFETY in simplicity. Community Silver is perfectly easy to understand. It is made only in one grade of plate. This grade is the best. Its quality is as standard as Sterling. There is no room for confusion. Buying it is easy—selling it is easy.

Community Silver has the handsomest designs. It has the heaviest plate. It wears the longest. It yields the largest profit. It is the best advertised and most satisfactory line to handle.

The Classic design has the distinction of being the latest creation in Community Silver. Its simplicity, grace and beauty justify its name. Where the ornamentation is so delicate, every line and curve is important; and they combine in this design to produce an exceptionally beautiful effect.

SPOONS

No. 7604X.	After Dinner Coffee.	Packed Six in Lined Box.	Per Doz., $4.80
No. 7604X.	Gilt After Dinner Coffee.	" " " "	" " 7.36
No. 7601.	Five O'Clock Tea.	Packed Six in Unlined Box.	" " 4.80
No. 7601X.	Gilt Five O'Clock Tea.	" " " " "	" " 7.36
No. 7602.	Tea.	" " " "	" " 4.80
No. 7602X	Gilt Tea.	" " " "	" " 7.36
No. 7603	Dessert.	" " " "	" " 8.64
No. 7605	Table.	" " " "	" " 9.60

FLAT HANDLE FORKS

No. 7606.	Dessert.	Packed Six in Unlined Box.	Per Doz., $8.64
No. 7607.	Medium.	" " " " " " "	" 9.60
No. 7608.	Child's.	" " " " " " "	" 8.64

HOLLOW HANDLE KNIVES

No. 7611.	Medium.	Packed Six in Flannel Roll.	Per Doz., $16.20
No. 7612.	Dessert.	" " " " " " "	" " 15.00
No. 7630.	Medium. Scimitar and Swaged.	" " " " " " "	" " 16.00
No. 7631.	Dessert " " "	" " " " " " "	" " 16.06
No. 7713.	Child's.	" " " " " " Lined Box.	" " 14.58

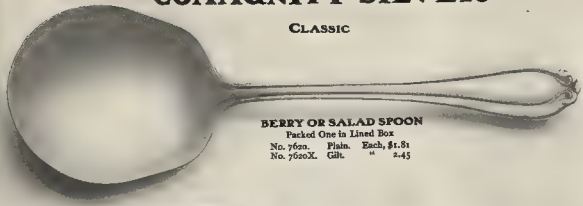
HOLLOW HANDLE FORKS

No. 7613.	Medium.	Packed Six in Flannel Roll.	Per Doz., $16.20
No. 7614.	Dessert.	" " " " " " "	15.66

Reproduction same size.

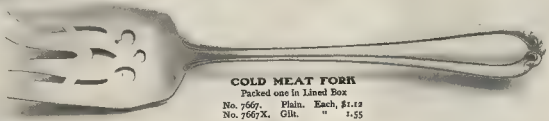
COMMUNITY SILVER

Classic



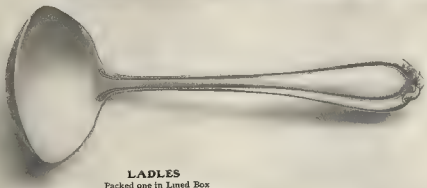
BERRY OR SALAD SPOON
Packed One in Lined Box

No. 7620.	Plain.	Each,	$1.81
No. 7620X.	Gilt.	"	2.45



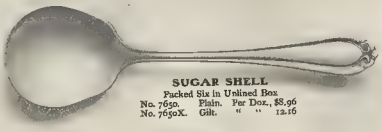
COLD MEAT FORK
Packed one in Lined Box

No. 7667.	Plain.	Each,	$1.12
No. 7667X.	Gilt.	"	1.55



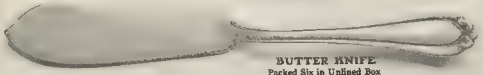
LADLES
Packed one in Lined Box

No. 7715.	Cream.	Plain.	Each,	$1.20
No. 7715X.	"	Gilt.	"	1.63
No. 7727.	Gravy.	Plain.	"	1.60
No. 7717X.	"	Gilt.	"	2.24
No. 7719.	Oyster.	Plain.	"	3.47
No. 7719X.	"	Gilt.	"	4.16
No. 7721.	Med. Soup.	Plain.	"	4.27
No. 7721X.	" "	Gilt.	"	5.12
No. 7720.	Soup, Indiv.	Plain.	"	2.78
No. 7720X.	" "	Gilt.	"	3.42



SUGAR SHELL
Packed Six in Unlined Box

No. 7650.	Plain.	Per Doz.,	$8.96
No. 7650X.	Gilt.	" "	12.16



BUTTER KNIFE
Packed Six in Unlined Box

No. 7695.	Plain	Per Doz.,	$10.56
No. 7695X.	Gilt.	" "	13.76

Reproduction three-quarters size.

COMMUNITY SILVER

CLASSIC

SOUP SPOON
Packed Six in Unlined Box
No. 7604 Per Doz., $9.60

BOUILLON SPOON
Packed Six in Lined Box
No. 7622. Plain. Per Set $4 16
No. 7622X Gilt. " " 5 76

ORANGE SPOON
Packed Six in Lined Box
No 7641. Plain. Per Set, $3.20
No. 7641X. Gilt. " " 4.80

ICE CREAM FORK
Packed Six in Lined Box
No. 7632. Plain. Per Set $3 52
No. 7632X. Gilt. " " 5 12

HOLLOW HANDLE FRUIT KNIFE
Packed Six in Lined Box
No 7704. Per Set, $7.29

HOLLOW HANDLE BUTTER SPREADER
Packed Six in Lined Box
No. 7707. Per Set, $7.29

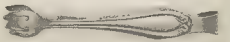
HOLLOW HANDLE ORANGE KNIFE
Packed Six in Lined Box
No. 7712. Per Set, $7.78

FLAT HANDLE BUTTER SPREADER
Packed Six in Lined Box
No. 7697. Plain. Per Set, $4.00
No. 7697X. Gilt. " " 5.28

OYSTER FORK
Packed Six in Lined Box
No 7679. Plain. Per Set, $3.13
No. 7679X. Gilt. " " 4.74

BERRY FORK
Packed Six in Lined Box
No 7663. Plain. Per Set $2.72
No. 7663X. Gilt. " 4.00

INDIVIDUAL SALAD FORK
Packed Six in Lined Box
No. 7688. Plain. Per Set, $4 80
No 7688X Gilt " " 6 40



SUGAR TONGS
Packed One in Lined Box
No. 7705. Each, $1.28

PICKLE FORK
Packed One in Lined Box
No 7682. Plain. Each, $ .56
No. 7682X. Gilt " 85

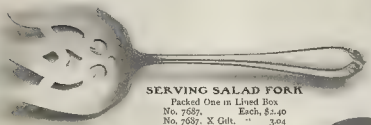
Reproduction one-half size

COMMUNITY SILVER

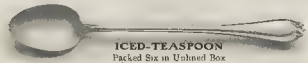
Classic

HOLLOW HANDLE PIE SERVER
Packed One in Lined Box
No. 7710 Each, $2.34

MUSTARD SPOON
Packed Six in Unlined Box
No. 7621. Plain Per Doz., $6.08.



SERVING SALAD FORK
Packed One in Lined Box
No. 7687, Each, $2.40
No. 7687. X Gilt. " 3.04



ICED-TEASPOON
Packed Six in Unlined Box
No. 7629. Per Doz., $6.72
No. 7629. X Gilt. " " 9.28

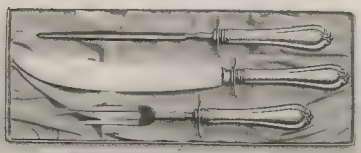
HOLLOW HANDLE CHEESE SCOOP
Packed One in Lined Box
No. 7610. Each, $2.38

Reproduction one half size.

THREE PIECE CHILD SET
Packed One Set in Lined Box
No. 7735. Hollow Handle Knife. Per Set, $2.37

SMALL CARVING SET
Packed One Set in Lined Box
No. 7728. Per Set, $4.96

LARGE CARVING SET
Packed One Set in Lined Box
No. 7725. Per Set, $10.80



Reproduction one-fourth size.

STIRRUPS.

METAL.

Ladies'.

Men's.

Per Single Dozen

No. 14—LADIES' METAL STIRRUPS; XC Plate (Tinned); Inside Measurements: 3 inches Wide across Bottom, 3 inches High; 1 inch Stirrup Leather Loop; Fancy Cut Foot 2½ inches Wide; Weight per dozen about 5 lbs... $1.30

Per Dozen Pairs

No. 842—MEN'S METAL STIRRUP; XC Plate (Tinned); Inside Measurements: 3¾ inches Wide at Bottom, 3¾ inches High; 1¼ inch Stirrup Leather Loop; Fancy Cut Foot 2½ inches Wide; Weight per dozen pairs about 12 lbs $5.00

No. 3T Leather Trimmed; suitable for Any Style Saddle

Ladies'.

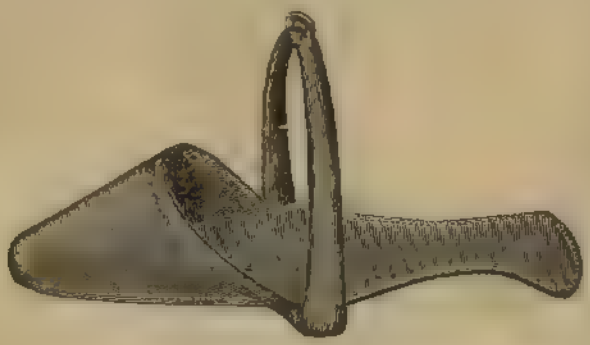
Per Dozen Pairs

No. 2T—OCTAGON; METAL STIRRUP XC Plate (Tinned); Untrimmed; Inside Measurements: 4½ inches Wide, 4½ inches High; With Holes along Edge for Trimming Purposes; Weight per dozen pairs about 20 lbs..$10.00

No. 3T—Russet Leather Trimmed Foot, Buckskin Laced on; Otherwise same as No. 2T; Weight per dozen pairs about 20 lbs..... 18.00

Per Single Dozen

No. 39L—LADIES' METAL STIRRUP; XC Plate (Tinned); Heart Shaped Foot 3½ inches Long; Inside Measurements: 3 inches Wide, 2½ inches High; ¾ inch Stirrup Leather Loop; The Stirrup is Always in Position for Mounting; Weight per dozen pairs about 6 lbs. $3.00



Ladies' Slippers.

METAL STIRRUP; XC Plate (Tinned); With Steel Foot, Russet Leather Cover Sewed on; Slipper has Half-Oscillating Motion on Stirrup; 1 inch Stirrup Leather Loop; Inside Measurements of Stirrup, 3¼ inches Wide, 3¼ inches High.

Per Single Dozen

No. 1A—RED CALFSKIN COVERED TOE, Silk Thread Stitched $15 00

No. 4B—IMITATION BUCKSKIN COVERED TOE, Silk Thread Stitched 17 00

No. 4L—HOGSKIN COVERED TOE, Russet Color, Silk Thread Stitched 17.00

Weight per Dozen about 12 lbs.
Packed Loose.

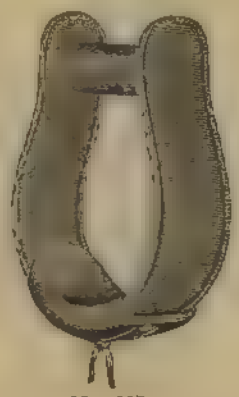
STIRRUPS.

METAL.

Leather Trimmed and Covered.

No. 923.

No. 925.



No. 927.

No. 928.

Per Dozen Pairs

No. 923—Wilson's Metal Stirrup; XC Plate (Tinned); With Russet Leather Trimmed Foot Piece, Buckskin Laced on, and Russet Leather Shield, Riveted around Bar; Metal Bar 3 inches Long; Inside Measurements: 5 inches Wide across Center, 4¾ inches High, 2½ inches Wide at Foot; Weight per dozen pairs about 42 lbs.....$29.00

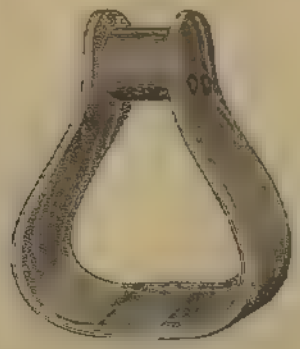
No. 925—Wilson's Metal Stirrup; Full Russet Leather Covered, Stitched; With Extra Russet Leather Foot Piece, Buckskin Laced on; Otherwise same as No. 923; Weight per dozen pairs about 48 lbs..... 41.00

Per Dozen Pairs

No. 927—Wrought Iron Stirrup; Full Russet Leather Covered, Stitched; With Extra Russet Leather Foot Piece, Buckskin Laced on; Russet Leather Shield, Riveted around Bar; Metal Bar 3 inches Long; Inside Measurements: 5 inches Wide across Center, 4¾ inches High, 2½ inches Wide at Foot; Weight per dozen pairs about 30 lbs.....$26.00

No. 928—Turner's Metal Stirrup; XC Plate (Tinned); With Russet Leather Trimmed Sides and Leather Lined Foot Piece, Buckskin Laced on; Russet Leather Shield, Riveted around Bar; Metal Bar 3 inches Long; Inside Measurements: 5 inches Wide across Center, 4¾ inches High, 2½ inches Wide at Foot; Weight per dozen pairs about 36 lbs.... 33.00

WOOD.



No. 2.

No. 33.

No. 2—MEN'S SOLID BENT PLAIN ASH; 7/16 inch Thick. Two Iron Bolts through Bar; Bar 1½ inches in Diameter, 3½ inches Long. Inside Measurements. 5 inches Wide 5½ inches High.

Width of Wood at Bottom inches..	2½	3
Weight per dozen pairs about, lbs.....	12	15
Per dozen pairs.....	$2.00	2.20

No. 33—LADIES' SOLID BENT PLAIN ASH. ⅜ inch Thick. One Iron Bolt through Bar, Bar 1¼ inches in Diameter, 2½ inches Long. Inside Measurements. 4½ inches Wide, 4½ inches High.

Width of Wood at Bottom, inches..	2
Weight per dozen about, lbs.....	6
Per single dozen.....	$3.00

Packed Loose.

STIRRUPS.

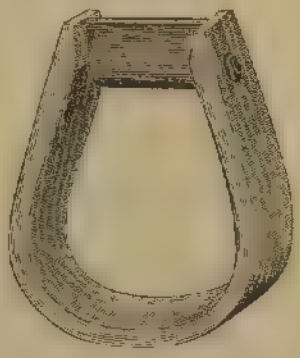
WOOD.

No. 30—MEN'S; GENUINE OX BOW; SOLID BENT PLAIN ASH, ½ inch Thick; One Iron Bolt through Bar; Bar 1½ inches in Diameter, 3 inches Long; Inside Measurements: 5 inches Wide, 5½ inches High.

Width at Bottom, inches	1½	2
Weight per dozen pairs about, lbs	15	18
Per dozen pairs	$5.00	5 50

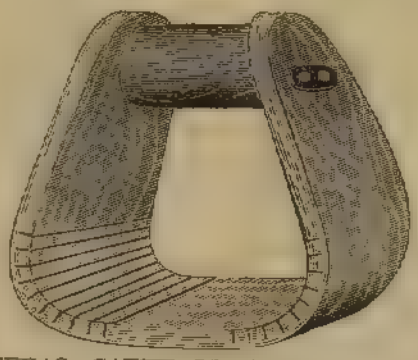
No. 10—SOLID BENT PLAIN ASH, 5/16 inch Thick; 1 Iron Bolt through Bar; Bar 1½ inches in Diameter, 3 inches Long; Inside Measurements: 5 inches Wide, 5½ inches High.

Width at Bottom, inches	3	4
Weight per dozen pairs about, lbs	15	18
Per dozen pairs	$4.00	4.50



No. 11—MEN'S SOLID BENT PLAIN ASH, ⅜ inch Thick; One Iron Bolt through Bar; Bar 1½ inches in Diameter, 3 inches Long; Inside Measurements: 5 inches Wide, 5½ inches High.

Width at Bottom, inches	1½	2	2½	3
Wgt. per doz. pairs about, lbs.	9	12	15	18
Per dozen pairs	$3.50	3.80	4.80	5.00



No. 4—TEXAS; SAWED PLAIN ASH, ½ inch Thick; Two Iron Rivets through Bar; Bar 1½ inches in Diameter, 3 inches Long; Inside Measurements: 5 inches Wide, 5½ inches High.

Width at Bottom, inches	4	5	6
Weight per dozen pairs about, lbs	18	24	30
Per dozen pairs	$3.00	3.50	4.00

No. 11Y—YOUTH'S SOLID BENT PLAIN ASH; 5/16 inch Thick; One Iron Bolt through Bar; Bar 1¼ inches in Diameter, 2½ inches Long; Inside Measurements: 4½ inches Wide, 5 inches High.

Width at Bottom, inches	2
Weight per dozen pairs about, lbs	12
Per dozen pairs	$3 50

No. 3—YOUTH'S; SAWED PLAIN ASH, 7/16 inch Thick; One Iron Bolt through Bar; Bar 1¼ inches in Diameter, 2½ inches Long; Inside Measurements: 3¾ inches Wide, 4 inches High.

Width at Bottom, inches	3	4
Weight per dozen pairs about, lbs	12	15
Per dozen pairs	$3.00	3.50

Packed Loose.

STIRRUPS.

WOOD

No. 36B—OX BOW; SOLID BENT HARDWOOD, ½ inch Thick; Brass Bound Over Top; Metal Bar 7/16 inch in Diameter, 3 inches Long; Iron Bolt through Bar; Inside Measurements: 5 inches Wide across Center, 5 inches High.

Width at Bottom, inches	1½
Weight per dozen pairs about, lbs.	18
Per dozen pairs	$17 00

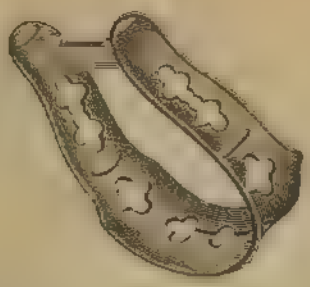
No. 38B—SOLID BENT HARDWOOD, ½ inch Thick; Brass Bound Over Top; Metal Bar 7/16 inch in Diameter, 3 inches Long; Iron Bolt through Bar, Inside Measurements: 5 inches Wide, 5 inches High.

Width at Bottom, inches	2	2½	3
Weight per dozen pairs about, lbs.	24	30	36
Per dozen pairs	$17.00	18.00	20.00

No. 39—SOLID BENT HARDWOOD, ½ inch Thick; Brass Bound Over Top; Metal Bars 7/16 inch in Diameter, 3 inches Long; Iron Bolt through Bar; Inside Measurements: 5 inches Wide, 5 inches High.

Width at Bottom, inches	2	2½	3	3½
Wgt. per doz. pairs about, lbs.	24	30	36	42
Per dozen pairs	$16.00	17.00	18.00	20.00

METAL.



Per Dozen Pairs

No. 887—WORCH; MALLEABLE IRON, XC Plate (Tinned); 3¼ inches Wide at Top; 5 inches Wide across Center; 2¼ inches Wide at Bottom; Weight per dozen pairs about 30 lbs. $12.00

Per Dozen Pairs

No. 1W—WILSON'S PATENT COW-BOY, MALLEABLE IRON, XC Plate (Tinned); 3 inches Wide at Top; 5 inches Wide across Center; 2½ inches Wide at Bottom; Weight per dozen pairs about 36 lbs. $15.00

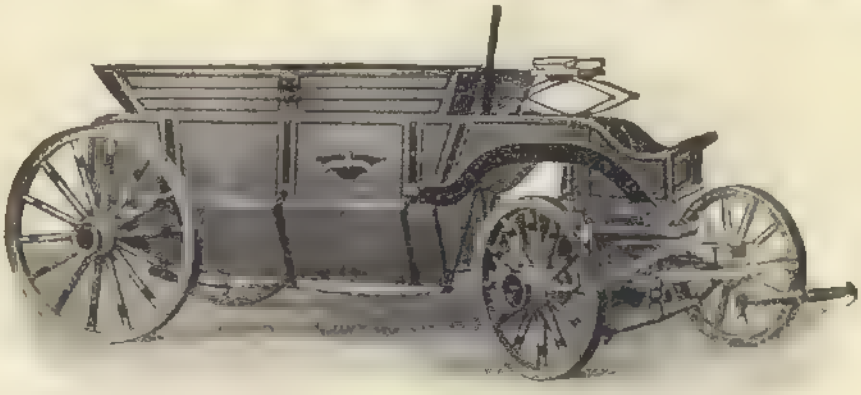
Per Dozen Pairs

No. 810—WILSON'S; MALLEABLE IRON, XC Plate (Tinned); Hangs in Stirrup Leather without a Twist, and Flat to Horse's side; The Stirrup is Always in Position; With Roller 3 inches Long; 3 inches Wide at Top; 5 inches Wide across Center; 2½ inches Wide at Bottom; Weight per dozen pairs about 36 lbs. $20 00

Packed Loose.

THE "EAGLE" CONTRACTORS' DUMP WAGON

Dumps with the Foot. Winds Up with Hand Lever. Easy Spring Seat. Good Foot Board. Steel Axles Only, with Sand Guards for Rear Wheels



Painted Red

Reasons for Its Popularity

Its mechanism is simple.
It has but one chain, yet each door rests on a chain.
Its chain takes up its own slack, shutting both doors tight.
Its doors always lap in the center
Its hinges on body and doors are wrought
Its neck is lined both inside and outside
It has been on the market for seven years
It has been tested—some wagons are experiments yet.

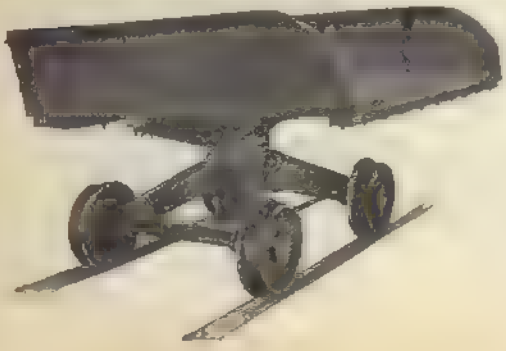
This wagon has more good (and patented) features than any other dump wagon on the market. It is made by a **wagon company** of the best materials for the purpose, the workmanship and finish are unsurpassed. Its first cost is lower than most wagons of this type but it is by far the cheapest in the end.

Capacity	Depth of Body	Steel Axles Front	Steel Axles Rear	Size of Tires 3 x ½	Size of Tires 3 x ⅝	Size of Tires 4 x ⅝	Brake	Extras For Bedded Axle	Extras For Lining Door with Steel	Extras For Lining Wagon Throughout with Steel
1½ yards	18 in	2 in. sq	2¼ in. sq	$153 00	$158 00	$165 00	$11 25	$5 25	$6 00	$18.00
2 "	18 "	2 "	2¼ "	160 00	165.00	173 00	11.25	5.25	6 00	18 00
2½ "	18 "	2 "	2¼ "	168.00	173.00	180 00	11 25	5.25	6 00	18.00
3 "	18 "	2 "	2¼ "	175 00	180.00	188 00	11 25	5 25	6 00	18 00

All furnished with flaring top boxes—the 2, 2½ and 3 yd. sizes with 1 or 2 top boxes as ordered. Contractors' favorite size is the 1½ yard with 3x⅝ tires; 9 to 14 to a carload. For city use the 1½ and 2 yd with 3x⅝ tires are the popular sizes.

All wagons are fitted with whiffletrees, stay chains and spring seat and either drop pole and neckyoke or stiff pole and neck chains as ordered.

Steel wagons furnished promptly in same sizes as above, prices upon request.



REVOLVING DUMP CARS

For Contractors. Also Used as Clay Cars

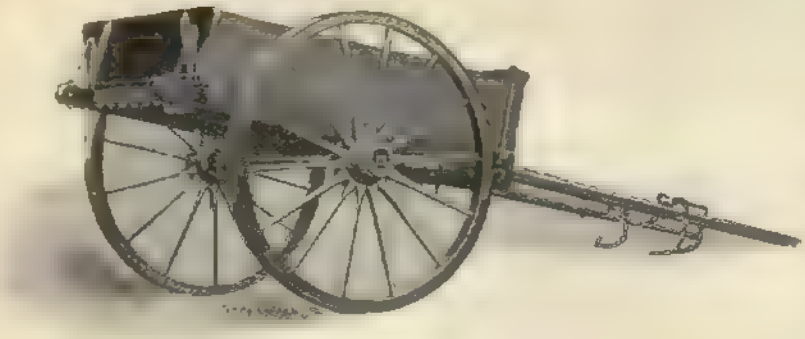
Gauge 36 in. Wheel base 40 in.
Diam. of wheels 16 in. Axles 2½ in. steel.
Length over end sills 8 ft., length inside 6 ft. 6½ in.
Width over all 6 ft. Width inside 5 ft. 6 in.
Height to top of floor from rail 3 ft.

Cars are all iron except the bed, which is of oak and has open endgate, and can always be turned toward the shovelers.

Weight about 2,500 lbs.

1½-yard car is same as 2-yard car, except that the 1½-yard body is lower.

1½-yard car. . . . . Price, $70.00
2 " " . . . . . " 75.00



CONTRACTORS' LIGHT AND HEAVY DUMP CARTS

Light cart. Capacity, 21 cubic feet or 2,500 lbs. Weight, 650 lbs.
Heavy cart. Capacity, 24 cubic feet or 3,500 lbs. Weight, 800 lbs.

Strong, substantial, durable. Made throughout of hardwood, strongly bolted and braced. Specially adapted for the hardest usage, including rock, gravel, clay and other heavy material. Parts easily replaced when worn out.

Heavy cart. Bed, size of inside, 66 inches long, 44 inches wide, 14 inches deep.
Light cart. Same length and width, 12 inches deep.

Wheels. 54 inches diameter.
Hubs. 9 inches diameter, 12 inches long.
Spokes. Fourteen 2½ inch best second-growth oak.
Tires. 3 x [illegible] steel.
Steel Axle. 2 [illegible] inches square.
Spindle. 2¼ x 11 inches.
Wood Axle Bed. 5¼ x 8 inches.
Shafts. Oak or ash 2¼ x 5½ inches, with heavy crossbar, 2½ x 8 inches.

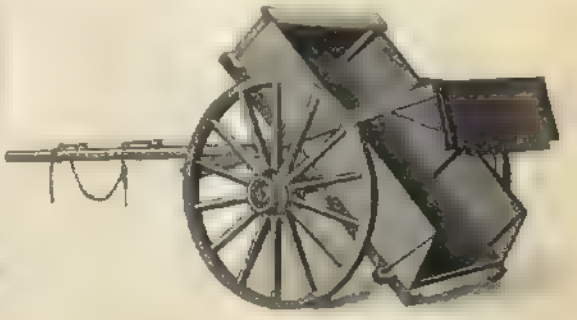
Supplied with necessary chains and hooks as in cut.

The bed has two heavy sills, 2½ x 4 inches, with heavy cross piece, 2¼ x 3 inches at rear end. The sides, cross piece and tail gate are all 1⅝ inches thick. The front end board has cross piece on top, 1¼ x 4 inches, bolted down through the sills and these bolts firmly bind together the front end of the bed. There are also four heavy steel or bolts inside on each side board, firmly securing them to the side sills and the side boards have heavy iron straps along the upper edges. The rear ends of sides and the tail gate have heavy iron braces.

The wheels are set to standard width tracks, 5 feet 2 inches. Carts painted Venetian red.

No. 80	Light cart	List price,	$60.00
" 85	Heavy cart	"	66.00
" 90	Heavy carts with hopper (shown below)	"	79.00
" 100	Heavy carts with patent automatic dumping end gates (shown below)	"	76.00

Cut of heavy Cart with wing boards or hopper. Weight, 890 lbs.

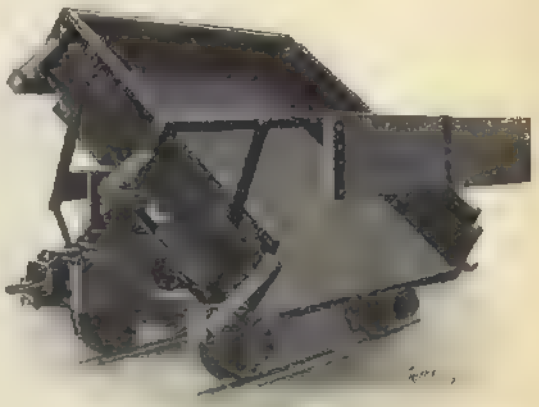


Cut of Cart with patent automatic dumping end gate attachment. Weight, 960 lbs.

CONTRACTORS' DUMP CARS

From 1 1-2 to 6 Cubic Yards. For Hand or Steam Shovel Work

1½ yard car in carrying position



1½ yard car in dumping position

No. 10. 1 1-2 Yard Two-way Dump Car

36 inch Gauge

Inside dimensions of bed Length 72 inches, width 72 inches, depth 14 inches; 16 inch chilled plate wheels, weight 108 pounds each Axles 2½-inch round steel. Bronzed journal bearings 2½x6 inches Height from top of rail to center of drawbar 2[illegible]½ inches; from top of rail to floor, 30 inches from top of rail to top of bed, 53 inches.

Weight, about 2,400 pounds; 12 to 14 to carload. **Price, $....**

No. 12. 3 Yard Two-way Dump Steam Shovel Car

With diamond frame steel truck and springs over axles. Gauge, 36 inches

Inside dimensions of bed Length 96 inches, width 72 inches, depth 20 inches. Total length from end to end of coupler, 114 inches Total width over all, 82 inches 16 inch chilled plate wheels, weight 130 pounds each Axles, 3[illegible] round steel Bronze journal bearings 3x[illegible] inches. Height from top of rail to center of drawbar, 2[illegible]½ inches From top of rail to floor, 42 inches From top of rail to top of bed, 62 inches

Weight, about 4,600 pounds. 8 to a carload. **Price, without brakes, $**

No. 14. 6 Yard Two-way Dump Steam Shovel Car

Standard gauge, 4 feet 8½ inches. Diamond frame steel running gear

Inside dimensions of bed Length 108½ inches, width 102 inches, depth 20 inches. From top of rail to center of drawbar, 27½ inches, from top of rail to top of floor, 35 inches; from top of rail to top of car 81 inches; wheel base 54 inches; 24 inch chilled plate wheels, weight 300 pounds each; 4½ inch round hammered iron axles. Bronzed journal bearings 3½x7 inches Weight about [illegible] pounds Three cars, set up, shipped on flat car as carload [illegible] M[illegible] B couplers and wheel brakes when [illegible] ordered

Price, $.

Prices and specifications of other sizes given upon request

No. 16. 6 Yard Hopper or Bottom Dump Cars

Standard Gauge

Designed for ballast work and built very low. Length of box 96 inches width 76 inches depth 55 inches height from rail to drawbar 27 inches, door 19x55 inches, 24-inch solid plate chilled-face wheels axles 4½-inch round, brass journals 3½x7

Furnished with or without brakes, as ordered. **Price, $....**

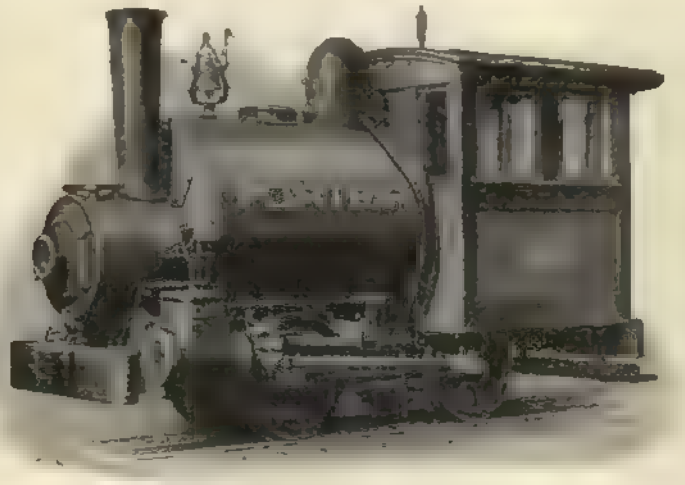
No. 20. 1½ Yard Rotary Dump Car

36 inch gauge Box inside Length 72 inches width 72 inches depth 14 inches Top of rail to top of floor 38 inches to top of bed 52 inches 16-inch chilled plate wheels, 2½ round axles bronze journal bearings 2[illegible]10x6 inches, turntable 31 inches diameter, composed of two heavy steel plate revolving fifth wheels, which turn on eight 2¼-inch steel rollers.

Weight 2,100 pounds, 12 to 14 to carload. **Price, $....**

PORTER LIGHT SADDLE TANK LOCOMOTIVES

New Design for Contractors, Logging, Plantations, Inside and Outside Mines, Rolling Mills, or Other Service



Built 30-inch Gauge and Upward

The above design is the most popular and widely used contractors' locomotive built. Kirwan and Kittel are usually kept in stock for immediate delivery for 36 inches gauge. The Kittel is the size most generally used by contractors. These locomotives are built with boilers to insurance companies' requirements, and abundantly free steaming, best forged iron frames, steel crossheads, open hearth steel forgings, best materials and workmanship and of design which is the result of 35 years' experience. All Porter Co.'s locomotives are built to exact system, and duplicate parts which will fit correctly are kept on hand in stock. These locomotives are especially adapted for industrial service, coal and ore roads, quarries, tramways, etc.

Code Word	Kirche	Kirmes	Kirwan	Kismet	Kittel	Kittim
Cylinders, diameter, inches	5	6	7	8	9	10
Cylinders, stroke, inches	10	10	12	14	14	14
Diameter of driving wheels, inches	20	20	24	28	28	30
Wheel-base, feet and inches	4-0	4-0	4-8	[illegible]	5-3	4-6
Length over bumpers, feet and inches	11-0	11-6	[illegible]	14-[illegible]	[illegible]	[illegible]
Extreme height above rail, feet and inches	9-4	9-6	9-8	9-10	10-0	10-3
Weight in working order, all on driving wheels, pounds	11,[illegible]	14,[illegible]	17,[illegible]	23,[illegible]	27,[illegible]	32,[illegible]
Water capacity of tank, gallons	125	150	[illegible]	250	325	400
Fuel capacity, coal, pounds	200	200	2[illegible]	300	350	4[illegible]
Fuel capacity, wood, cubic feet	15	18	2[illegible]	2[illegible]	25	25
Weight per yard of lightest rail advised, pounds	14	16	16	20	25	30
Radius of sharpest curve advised, feet	3[illegible]	30	35	35	40	35
Radius of sharpest curve practicable, feet	15	15	16	18	20	18
Boiler pressure per square inch, pounds	150	150	1[illegible]	1[illegible]	1[illegible]	150
Tractive force, pounds	1,[illegible]	2,290	3,125	4,0[illegible]	5,[illegible]	5,960
Hauling capacity, in tons of 2,000 lbs (exclusive of locomotive): On absolute level	245	345	47[illegible]	610	775	900
On ½ per cent grade = 26 [illegible] feet per mile	[illegible]	130	18[illegible]	235	2[illegible]	34[illegible]
" 1 " " = 52 [illegible] " " "	[illegible]	7[illegible]	10[illegible]	140	180	210
" 2 " " = 1[illegible] " "	2[illegible]	4[illegible]	5[illegible]	75	95	105
" 3 " " = 158 [illegible] " " "	1[illegible]	2[illegible]	[illegible]	4[illegible]	6[illegible]	75

NOTE.—The above figures for hauling capacity are based on a frictional resistance of 6½ pounds per ton of 2,000 pounds. In practice this may run 5 to 10 pounds for good cars and track, or much higher for poor cars and track.

HAND MIRRORS—Continued

No. 80360

No. 80361

No. 80362

No. — Per doz.
80360 Diamond shape, heavy glass, chipped edges, metal frame, oxidized copper finish, adjustable mirror, size 4½x4½, adjustable easel handle . . . 14 00
80361 Oval, heavy glass, chipped edges, metal frame, oxidized copper finish adjustable mirror, size 4x6, and adjustable easel handle 4 00
80362 Combination standing and hand mirror, oblong square size 4x6 metal frame, oxidized copper finish, adjustable easel handle 4 00

No. 80363

No. 80366

No. 80367

No. — Per doz.
80363 Round, heavy glass, chipped edges, diameter 5 inches, metal frame, oxidized copper finish, adjustable mirror and adjustable easel handle . . . 14 00
80366 Round, heavy plate glass, chipped edges, adjustable, diameter 6 inches metal ebony finished inside frame, oxidized copper outside frame 8 00
80367 Oblong, heavy plate glass, chipped edges, size 5x7, ebony finished metal inside frame, oxidized copper outside frame, adjustable mirror and adjustable easel handle . . 8 00

No. 80368

No. 80356

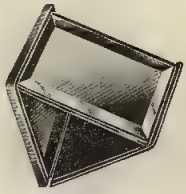
No. 80357

No. — Per doz.
80368 Diamond shape heavy glass chipped edges, size 5x5 adjustable ebony finished metal inside frame, oxidized copper outside frame, adjustable easel handle 11 00
80356 Heavy beveled plate glass, carved oak frame, adjustable handle, size 5x7 9 00
80358 Same as No. 80356, size 6x8 . . . . . 13 50
80357 Beveled plate glass, carved and polished wood frame, leatherette back, size 7x7 10 00

No. 80369

No. 80370

No. — Per doz.
80369 Round, diameter of glass 5 inches, ebony finished metal frame hand or stand mirror, adjustable . . . 8 50
80370 Oblong square, size of glass 4x6, copper finished metal frame hand or stand mirror, adjustable . . . 8 50


No. 80317

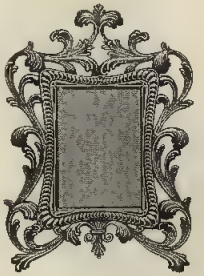
No. 80315

No. — Per doz.
80317 Double sided, one side magnifying, nickel-finished metal frame and handle, diameter 5½ inches . . . 8 00
80315 Travelling mirror dark blue kerstol, adjustable, beveled plate glass, size 4½x6½ 16 00

No. 80359

No. 80331

No. — Per doz.
80359 Oval beveled plate glass, silver-finished metal frame leatherette back, size 5x7 $13 50
80331 Gold-plated metal frame, burnished, beveled plate glass, full size 7½x12 inches 12 00


No. 80342

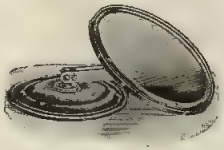
No. 80335

No. — Per doz.
80342 Cast metal frame, gold-plated and polished, beveled plate glass, height 12½ inches, size of glass 4½x6 . . . 21 00
80335 Open work metal frame, gold-finished, beveled plate oval glass, folding support at back, full size 10x10½ inches . . . 24 00

Many of the articles in this list are especially intended for holiday sales and of such goods it is impossible to keep a complete assortment throughout the entire season. In ordering near the close of the holiday season, or after it is over, it would be well for customers to give us permission to send the nearest we have to the article ordered, should it not be in stock. In most instances the difference in appearance and price would be slight.

FANCY MIRRORS—Continued

No. 80257



No. 80312

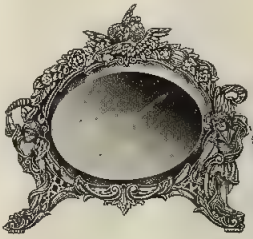
No.		Per doz.
80257	Wood base and frame, beveled plate mirror, size 5x7	$20 00
80312	Nickel base and frame adjusted as wall or stand mirror, diameter 6¾ inches	30 00

No. 80334

No. 80337

No.		Per doz.
80334	Heavy gold-plated metal frame, beveled plate glass, full size 7¾x11 inches	$24 00
80337	Gold-plated metal frame and two candlesticks, beveled plate mirror, size 8x12 inches	24 00

No.		Per doz.
80333	Handsome gold-plated heavy metal frame, cupid design, oval beveled plate glass, full size 9x11 inches	$24 00



No. 80343

No. 80336

No.		Per doz.
80336	Metal frame gold-plated and polished, beveled plate glass, full size 11x13 inches	$32 00
80343	Cast metal frame, gold-plated and polished, height 10 inches, size of glass 6x8	27 00

No.		Per doz.
80344	Cast metal frame, gold-plated and polished, height [illegible] inches, size of glass 6x8	$32 00

No.		Per doz.
80345	Cast metal frame, gold-plated and polished, beveled plate glass, size 6x8¾, height 11½ inches	$32 00

FANCY MIRRORS—Continued

No. 80338

No. 80348

No. — Per doz.
80338 Gold-plated metal open work frame and two candlesticks, beveled plate glass, full size 8½x20 inches $36 00
80348 Cast metal frame and base, gold-plated and polished, height 18½ inches, size of glass 6x8 54 00

No. 80347

No. 80346

No. 80349

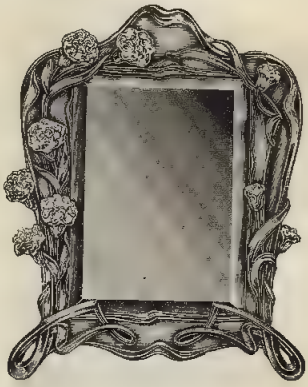
No. — Per doz.
80347 Cast metal frame, gold-plated and polished, beveled plate glass, diameter 8 inches, height 16½ inches 48 00
80346 Cast metal frame, gold-plated and polished, beveled plate glass, size 12x18½, full height 17 inches 36 00
80349 Cast metal frame, empire bronze finish, beveled plate glass size 6½x11 height 18½ inches 54 00

No. 80339

No. 80340

No. 80330

No. — Per doz.
80339 Beautiful swinging mirror on metal stand, gold-plated and highly polished, full height 19 inches, size of beveled plate glass 6¾x8 inches $54 00
80340 Heavy metal frame with two candlesticks, gold-plated heavy beveled plate mirror, size 7x18 inches 54 00
80330 Oval beveled plate adjustable glass, metal frame and standard quadruple gold plated 72 00



No. — Per doz.
80350 Silver-plated metal frame, French gray finish, beveled plate glass, full size 9x13 inches $45 00

No. — Per doz.
80351 Gold-plated metal frame, beveled plate glass full size 10x14 inches $48 00

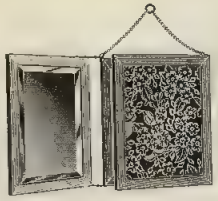
FANCY MIRRORS -Continued

TRIPLICATE

No.		Per doz.
80305	Polished brass frame, ornamental embossed design, with chain, leatherette backs, two artistic designs in natural colors on side wings, size of glasses 4x6½ inches	$12 00
80306	Same as No. 80305, size of glasses 5x6½ inches	16 00
80307	Same as No. 80305 size of glasses 6½x8½ inches	27 00
80310	Embossed celluloid sides with nickel chain to hang, size of glasses 4½x8½ inches	21 00
80308	Polished brass frames, ornamental embossed design, with chain, silk brocade outside beveled plate glasses, size 6½x8½ inches	48 00

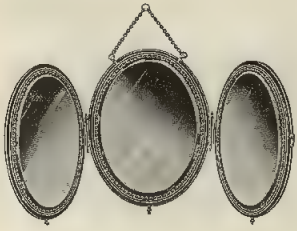
No.		Per doz.
80258	English oak, size of center glass 8x14, size of wings 6x8	66 00

No. 80371

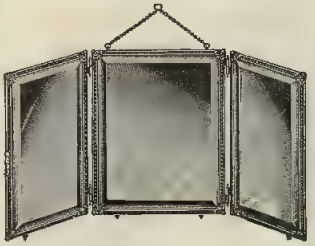


No. 80259

No.		Per doz.
80371	Heavy gold-plated and well lacquered metal frames, leatherette backs, substantial hinges, chain for hanging, size of glasses 6x9	$108 00
80259	English oak, size of glasses 8x10	72 00



No.		Per doz.
80372	Guaranteed gold-plated and well lacquered metal frames, substantial hinges and chain for hanging, transparent celluloid backs, beautiful design of ideal figure and flowers in natural colors, very handsome, size of glasses 8x10	$156 00



No.		Per doz.
80373	Heavy gold-plated and well lacquered metal frames, substantial hinges and chain for hanging, transparent celluloid backs, beautiful design of ideal heads in natural colors, size of glasses 8x10	$166 00

MIRRORS IN WOOD FRAMES

No. 80319

No. 80320

No.		Per doz.
80319	Two-opening French mirror, bottom opening fitted with fine French bevel plate mirror 10x34 inches, top opening 10x14 fitted with genuine photogravure beautifully colored by hand in genuine water colors, elaborately ornamented Pompeian gold frame profusely burnished in pure gold leaf full size 14x55	$216 00
80320	Two-opening upright French mirrors, bottom opening, 14x32 fitted with genuine German plate mirror, top opening 12x14 inches, fitted with fine photogravure beautifully and artistically colored by hand in genuine water colors, fine Etruscan frame and around mirror with 1-inch polished mahogany panel mounted by 3-inch ornamented Etruscan hand around outer edge, 4 fine corner and 2 center ornaments, 3 ornamental rosettes on top and elaborate deep relief carved ornamental top finished in Etruscan gold full size 18½x55 inches	270 00

RAZORS.

GEORGE WOSTENHOLM AND SONS, SHEFFIELD, ENGLAND.

FULL SIZE CUTS

IXL.

Per dozen

No. 725. Wostenholm's Superb, ⅝ in. Blade, Square Point Hollow Ground, Black Rubber Handle $36.00

Per dozen

No. 01325. Wostenholm's, ⅝ in. Blade, Hollow Point, Hollow Ground, White Handle $24.00

Per dozen

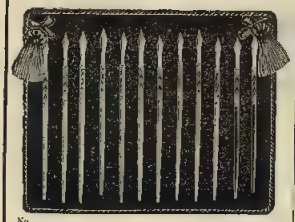
No. 0240. Wostenholm's, ⅝ in. Blade, Round Point, Hollow Ground, Black Rubber Handle..... $21.00

Per dozen

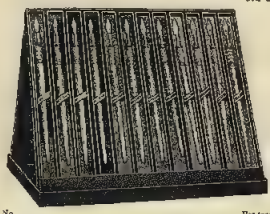
No. 03492. Wostenholm's, ⅝ in. Blade, Square Point, Gold Etching, Black Rubber Handle $18.00

All above, one in a case, half dozen in a carton.

GOLD PEN AND HOLDER ASSORTMENTS

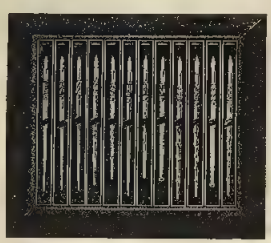


No. 125 White satin pad, 12 assorted holders with size 1, 10K gold pens, slide paper box for each pen, per assortment $12 00



No. 25 Easel display pasteboard box, containing 12 pearl pen-holders with assorted plain and rustic handles gold-plated ferrules fitted with size 1, 10K gold pens, each in plush lined pasteboard box . Per tray $12 00

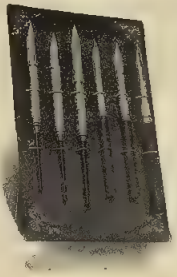
No. 126 Fancy satin drawer display box containing 12 pearl penholders with assorted roll gold plated ferrules fitted with sizes 2 and 4 10K gold pens, each in plush lined pasteboard box . Per tray . . $16 00



No. 26 Plush edge tray, containing 12 pearl penholders with assorted plain and rustic handles, gold-plated ferrules, fitted with sizes 2 and 3 10K gold pens, each in plush lined box . Per tray $16 00

No 27, fancy tray, containing the following:
Fitted with 10K gold pens and line gold-plated ferrules.
3 size 2 pens plain pearl holders
1 " 4 " " " " "
1 " 1 " colored pearl holder
2 " 2 " fancy " " "
3 " 4 " " " " "
1 " 2 " pearl holder inlaid with gold wire
1 " 4 " " " " "
12 silk plush sleeves with each assortment, per tray $21 00

No. 288 10K, No. 5 pen in three telescope and three back reverse holders, ½ dozen on card per card of 6 . $12 00



No. 299 10K, assorted, No. 2, 3, 4, 5, 6, pens in fancy telescope holders ½ dozen on display card per set of 6. $12 00

No. 230 ½ first quality containing No 1, 2 No. 5, 2 No. 6, and 1 No. 7 14K A. L. Co pens in ebony desk holders, mounted on fancy display card, per card of 6. $18 00

SPECIAL PEARL DESK HOLDERS

Fitted with 10K gold pens

No.		Per doz.
50	Size 1 pen with pearl holder in cloth hinged-cover box	$14 00
51	Same as No. 50, size 3 pen	19 00
150	Size 1 pen with pearl holder, in plush hinged-cover box, satin lined	16 00
151	Same as No. 150 size 3 pen	21 00

SILVER PENCILS

No. 540 Silver pencil protectors with pencils, per dozen $8 00

No. 585 Silver pencil and silver pencil holder in holly box per dozen sets $19 00

No. 586 Cable pencil and silver pencil holder in holly box per dozen sets $27 00

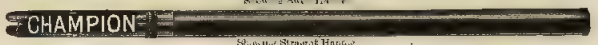
No. 587 Hexagon pencil and silver pencil holder in holly box, per dozen sets $23 00

No. 617 Slide chased pencil with ring and 6 extra pencils in holly box, per dozen sets $24 00

No. 586 Chased silver pencil and silver pencil holder in holly box, per dozen sets $27 00

PENHOLDERS

3 per cent extra discount allowed when full packages are ordered



Showing Straight Handles

STRAIGHT HANDLES

No.	Each in ½ gross packages	Per gro.
101	Polished cedar, black metal tips, small size	$2 00
102	" " " " " medium size	2 30

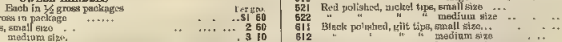
SWELL HANDLES

No.	Each in ½ gross packages	Per gro.
53	Stained, steel flange, 1 gross in package	$1 60
401	Polished cedar, black tips, small size	2 60
402	" " " " medium size	3 10
403	" " " " large "	3 30

SWELL HANDLES—Continued

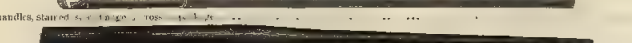
No.	Each in ½ gross packages	Per gro.
511	Black polished, nickel tips, small size	$4 80
512	" " " " medium size	5 40
513	" " " " large "	6 00
521	Red polished, nickel tips, small size	4 80
622	" " " " medium size	5 40
611	Black polished, gilt tips, small size	5 40
612	" " " " medium size	6 00
613	" " " " large "	6 60

No. 51 **Special**, straight handles, stained steel flange, 1 gross in package — Per gro. $0 80

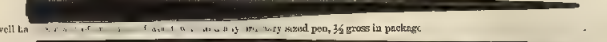


No. 716 **Black enameled** swell handles, [illegible] heavy stained pen, ½ gross in package — Per gro. $2 00

No. 1331 **Eberhard Faber's**, medium size cedar polished, tapering handle, metal tip, ⅔ gross in package — Per gro. $3 70

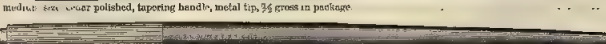


No. 88 **Eberhard Faber's**, small cedar handle, corrugated rubber covered tips, ½ gross in package — Per gro. $7 20

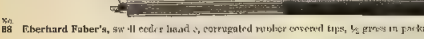


No. 77 **Eberhard Faber's**, medium assorted red, green and yellow pencils, cork tip, boxed nib, 1 dozen in box, ½ gross in carton — Per gro. $9 24

No. 76 **Eberhard Faber's "Korka,"** assorted colors, cork covered tip, ½ gross in package — Per gro. $9 24



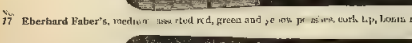
No. 86 **Eberhard Faber's**, pen dipping, medium size, tapering handles, assorted red, blue and green finishes, soft, fluted colored rubber tips, nickeled mountings, 1 dozen on card, 6 cards in package — Per gro. $9 60



No. 620 **McClurg's Matchless**, solid cork tip, natural polished tapering cedar handle, silver stamp, 1 dozen in flat pasteboard box, 6 boxes in package — Per gro. $9 60

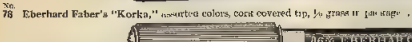
No. 652 **American Co.'s**, small size, swell handle, black polished, glass finish nickeled steel tip, length 6 inches, ½ gross in package — Per gro. $3 20

No. 651 Same as No. 652, medium size, length 6¾ inches, ½ gross in package — 3 76

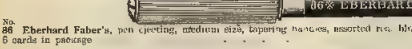


No. 308 **American Co.'s**, tapering handles, polished, assorted colors, solid beveled cork tip, length 6⅞ inches, 1 dozen on card, 6 cards in package — Per gro. $9 60

No. 377 **American Co.'s "Pneumatic,"** tapering handles, assorted colors, silver stamp, pneumatic rubber tip, length 7 inches, 1 dozen on card, 6 cards in package — Per gro. $9 60

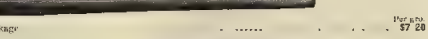


No. 379 **American Co.'s "Pneumatic,"** tapering handles, olive green finish, silver stamp, pneumatic rubber tip, length 7 inches, 1 dozen on card, 6 cards in package — Per gro. $9 60



No. 1926 **Eagle Co.'s**, cork covered, nickel, bonin tip, 1 doz. in box, 6 boxes in package — Per gro. $9 60

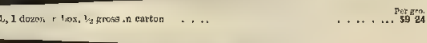
No. 1014 **Eagle Co.'s**, tapering handles, assorted colors, polished, cork tip, 1 dozen on card, ½ gross in package — Per gro. $9 60



No. 626 **American Co.'s**, swell handles, enameled, assorted colors, gilt metal tips, length 6¼ inches, 1 gross in package — Per gro. $2 00

No. 700 **Spencerian Oblique**, small diameter, length 6 inches, black enameled handles, brass tips, without pen, ¾ gross in package — Per gro. $6 24

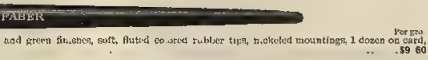
701 **Spencerian Oblique**, large diameter, length 6¼ inches, natural glass finish handles, brass tips, without pen, ½ gross in package — 9 20



No. 383 **American Co.'s**, thin tapering handles, assorted color finishes, gilt bands, solid cork tip, 1 dozen on card, 6 cards in package — Per gro. $9 60

No. 378 **American Co.'s "Pneumatic,"** tapering handles, yellow polished, pneumatic rubber tip, length 7 inches, 1 dozen on card, 6 cards in package — Per gro. $9 60

No. 1529 **Eagle Co.'s**, pen dipping holder, handles in assorted colors, cork covered tip, ½ gross in package — Per gro. $9 60

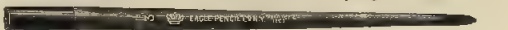


No. 1928 **Eagle Co's**, natural finish, cork covered tip, ⅔ gross in package — Per gro. $9 60

1015 " assorted colors, polished cedar, solid cork tip, ½ gross in package — 9 60

PENHOLDERS—Continued

3 per cent extra discount allowed when full packages are ordered. Nos. 019 and 714 and assortments excepted, packages of which we do not break, save at an additional charge of 10 per cent



Eagle Co.'s Crown polished cedar, swell handle, silver stamp hard rubber tips.

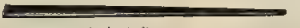
No.		Per gro.	No.		Per gro.	No.		Per gro.
R1	Small size, ½ gro. in package	$8 70	E2	Medium size, ½ gro. in package	$9 60	E3	Large size, ½ gro. in package	$10 60

No. 018 Tower's Bank polished cedar, cork covered tips, without pen, dozen in package . Per gro. $12 50

No. 714 All cork, length 5½ inches, 1 dozen in package. Per gro. $12 00

HARD RUBBER

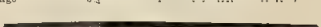
With Screw Plugs. Each in packages of 1 dozen



No.		Per doz.
R10	Long, non reverse, stan. size, length 6½ inches	$1 60
R11	" " " medium size, " 7½ "	2 04
R12	" " " large " 8¼ "	2 60

Long, Non reverse, with Flange.

No.		Per doz.
R11F	Medium size, length 7½ inches	$2 04
R12F	Large " " 8¼ "	2 60

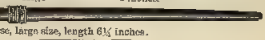


Long, Non-reverse, with Chased Tips.

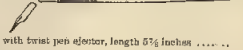
No.		Per doz.
R30	Small size, length 6½ inches	$2 32
R31	Medium size, " 7½ "	2 76
R32	Large " " 8¼ "	3 30

No.		Per doz.
R110	Short, non-reverse, small size, length 4½ inches	$2 00
R111	" " " medium size, " 5½ "	2 50
R112	" " " large " 6½ "	2 30

No.		Per doz.
R21	Pocket reverse, medium size, length 4 inches	$3 40
R22	" " large " " 4 inches	3 70



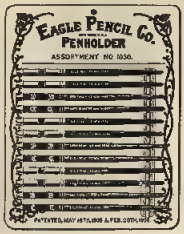
No.		Per doz.
R18	Long reverse, large size, length 6¼ inches	$3 86



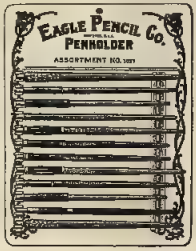
No.		Per doz.
R33	Chased tip, with twist pen ejector, length 5½ inches	$3 00

PENHOLDER ASSORTMENTS IN BOXES

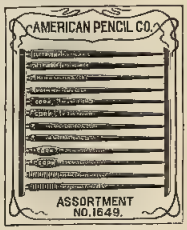
Boxes not broken



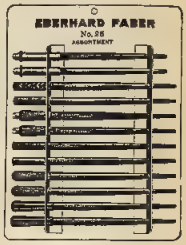
No. 1630 Eagle Co.'s, tapering handles, assorted colors polished, with assorted metal tips, 1 dozen on card . Per doz. cards. $8 00



No. 0027 Eagle Co.'s, tapering handles, assorted finishes, six different styles, 1 dozen on card . Per doz. cards. $8 64



No. 1649 American Co.'s, tapering handles, assorted finishes, assorted rubber, pneumatic, cork and business tips, 1 dozen on card . Per doz. cards. $8 00



No. 25 Eberhard Faber's, tapering handles, assorted colors, assorted, rubber, celluloid and cork tips, 1 dozen on card . Per doz. cards. $9 60

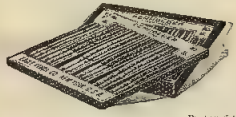
No. EF211 Eberhard Faber's. Box containing ¼ gross tapering handle penholders with assorted cork and rubber tips . Per box of ¼ gro. $2 20

No. 17 Eagle Co.'s, contains ½ gross, enameled, finished in bright colors, assorted, swell handles, assorted sizes and assorted gilt chased tips . Per box of ½ gro. $3 20

PENHOLDERS Continued

ASSORTMENTS Continued

No. 9 Eberhard Faber's Era, assorted taper handles, assorted colors, assorted gilt and celluloid tips, ½ gross in box, Per box of ½ gro. $2 00

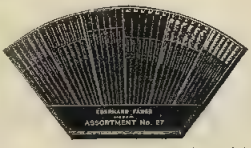


No. 16 Eagle Co.'s, box containing ¼ gross, in two trays, fancy mottled in bright colors, swell handles, assorted sizes and assorted gilt capped tips. Per box of ¼ gro. $2 00

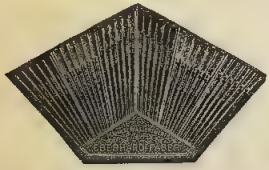
No. 203 Eberhard Faber's, contains ½ gross swell handles, assorted sizes, assorted rainbow copra, gilt tips. Per box of ½ gro. $2 20

No. 31 Eagle Co.'s Peacock, contains three dozen assorted colored penholders, with cork and metal tips. Per box of ½ gro. $2 00

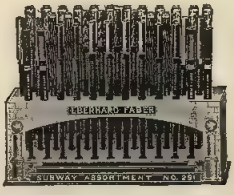
No. 30 Eagle Co.'s Assortment. Entirely new penholder display, consisting of ½ gross, the tips of which are finished in novel and unique "Polka Dot" designs in various colors. Sticks tapering, and highly enameled in yellow, box covered with paper of flowered design and trimmed with light blue. Per box of ¼ gro. $2 20



No. 27 Eberhard Faber's, assorted taper handles, assorted colors, gilt, hard rubber, soft rubber, anti-nervous, cork and celluloid tips, ¾ gross in box. Per box of ½ gro. $2 20



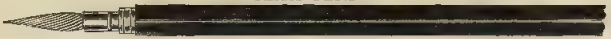
No. 215 Eberhard Faber's assorted taper handles, assorted polishes, assorted cork, hard and soft rubber and pen cleaning tips, ½ gross in box. Per box of ½ gro. $2 40



No. 291 Eberhard Faber's "Subway" Assortment, containing ½ gross assorted large, medium and small sizes, with assorted cork, rubber and anti-nervous tips, put up in attractive upright display stand Per box of ½ gro. $2 40

No. 1164 Eagle Co.'s Assortment, comprising ½ gross assorted large, medium, and small size with assorted cork, rubber and anti-nervous tips, put up in an attractive upright display stand Per box of ½ gro. $2 50

GLASS PENS



No. 108 Black polished handle, nickel mounted, reversible tip, length when open 7⅜ inches, fitted with spiral glass pen, 1 dozen on card. We do not break cards. Per gro. $2 00

STYLUSES

5 per cent extra discount allowed when full boxes are ordered

No. 07389 Tempered steel tip, black japanned handle, nickel mounted, 1 dozen in box Per doz. $1 60

No. 07390 Real agate tip, black japanned handle, gold mounted, 1 dozen in box Per doz. $5 60

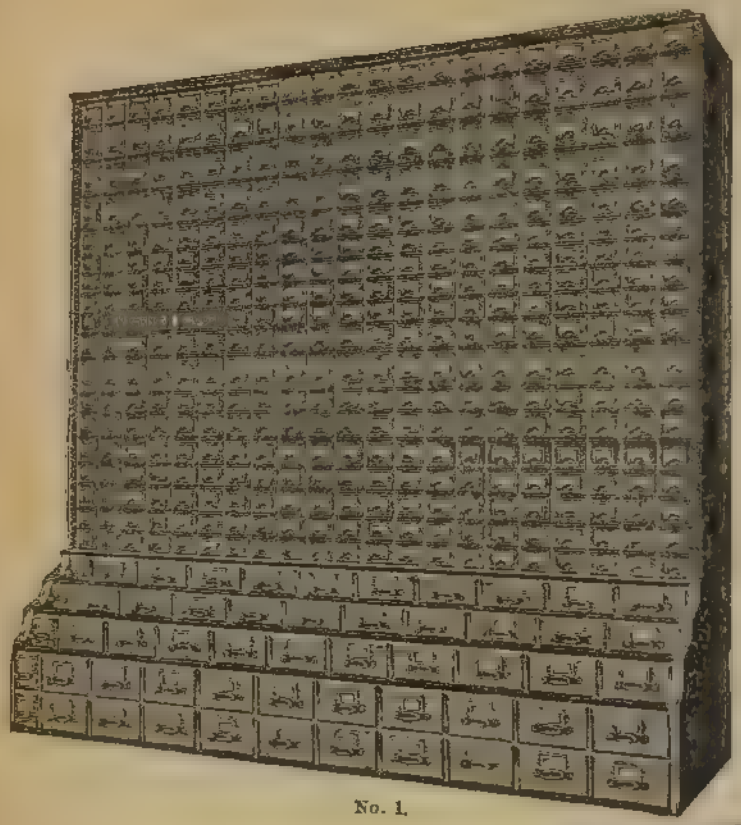
RUBBER MARKING PEN

5 per cent extra discount allowed when full packages are ordered

Polished cedar handle, rubber pen, for marking boxes, packages, etc., 1 dozen in package Per doz. $1 60

‡ HARDWARE CABINETS.

Riverside Drawer Cabinets.



No. 1.

Each

‡No. 1—DRAWER CABINET; Height 63 inches; Length 64 inches; Depth at Bottom 20 inches; Depth at Top 12 inches; 433 Drawers, Ranging in Sizes from $10\frac{7}{8}$x$2\frac{1}{4}$x$1\frac{1}{2}$ inches to 19x5x$2\frac{1}{2}$ inches; Complete with Set of Printed Labels $80.00

Shipping Weight 600 lbs.

‡No. 2—DRAWER CABINET; Height 63 inches; Length 64 inches, Depth at Bottom 20 inches; Depth at Top 12 inches; 370 Drawers, Ranging in Sizes from $10\frac{7}{8}$x$2\frac{1}{4}$x$1\frac{1}{2}$ inches to 19x5x$2\frac{1}{2}$ inches. This Cabinet is about the same as No. 1, only the four rows of Drawers used for Screws in No. 1 are changed to two rows for Butts in the No. 2; Complete with Set of Printed Labels 76.00

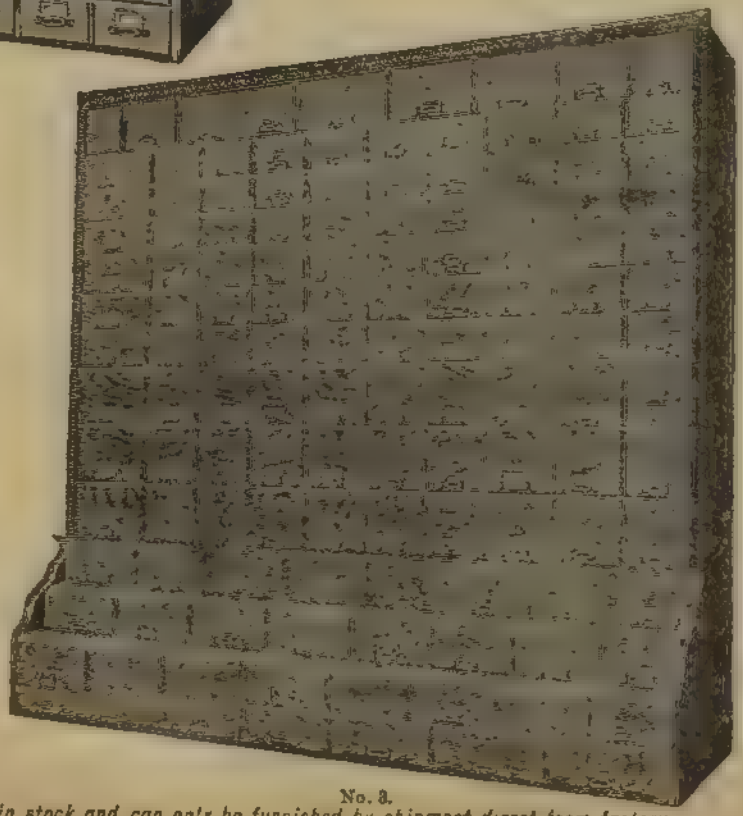
Shipping Weight 550 lbs.

Each

‡No. 3—DRAWER CABINET; Height 63 inches; Length 64 inches; Depth at Bottom 20 inches; Depth at Top 12 inches; 127 Drawers, Ranging in Sizes from $10\frac{7}{8}$x$5\frac{1}{8}$x$2\frac{3}{4}$ inches to 19x25x2 inches; Complete with Set of Printed Labels $70.00

The SUB-BASE in this Cabinet is used for Broad Axes, Hatchets, Hammers, etc., the TOP for Locks, Knobs, Butts, Brackets, etc.

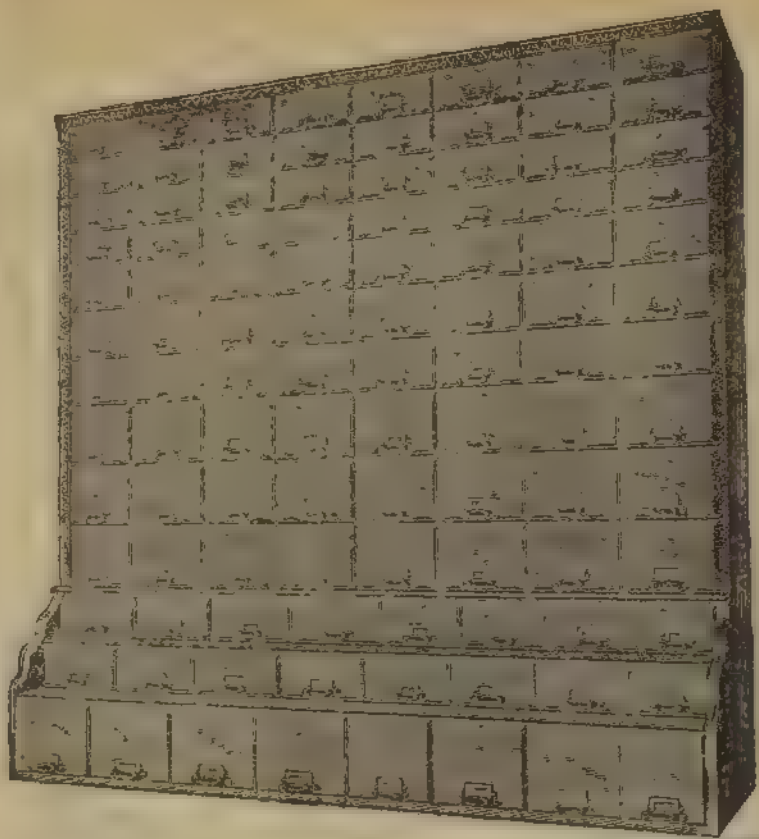
Shipping Weight 500 lbs.



No. 3.

‡Goods marked thus (‡) are not carried in stock and can only be furnished by shipment direct from factory.

See Page 1572 for General Description.



No. 4

‡HARDWARE CABINETS.

Riverside Drawer Cabinets.

Each

‡No. 4—DRAWER CABINET; Height 63 inches; Length 64 inches; Depth at Bottom 20 inches; Depth at Top 12 inches; 104 Drawers, Ranging in Sizes from 10⅞x7x2¾ inches to 19x7¾x6½ inches; Complete with Set of Blank Labels.....$65.00

This Cabinet is intended for General Hardware, to take the place of Box Shelving.

Shipping Weight 500 lbs.

Each

‡No. 5—DRAWER CABINET; Height 63 inches; Length 64 inches; Depth at Bottom 20 inches; Depth at Top 12 inches; 84 Drawers, Ranging in Sizes from 10⅞x9¾x3 inches to 19x7½x6½ inches; Complete with Set of Blank Labels $60.00

Shipping Weight 475 lbs.

No. 5.

‡Goods marked thus (‡) are not carried in stock and can only be furnished by shipment direct from factory.

See Page 1572 for General Description.

‡ HARDWARE CABINETS.

Riverside Drawer Cabinets.

No. 6.

Each

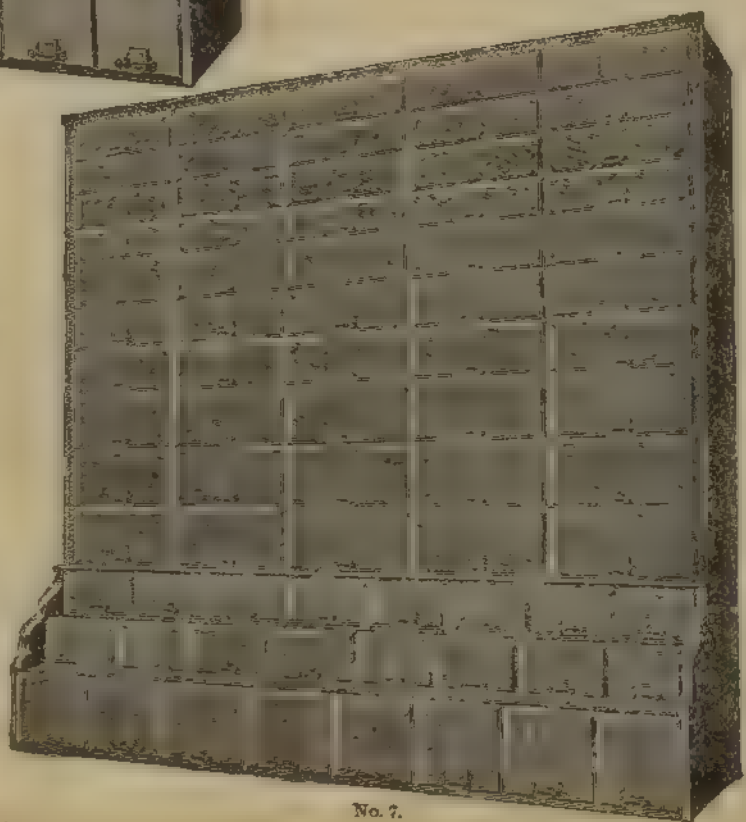
‡No. 6—DRAWER CABINET; Height 63 inches; Length 64 inches; Depth at Bottom 20 inches; Depth at Top 12 inches; 74 Drawers, Ranging in Sizes from 11x11¾x3 inches to 19x7⅞x6½ inches; Complete with Set of Blank Labels $55.00

Shipping Weight 450 lbs.

Each

‡No. 7—DRAWER CABINETS; Height 63 inches; Length 64 inches; Depth at Bottom 20 inches; Depth at Top 12 inches; 64 Drawers, Ranging in Sizes from 10⅞x15x2⅞ inches to 19x7¾x 6½ inches; Complete with Set of Blank Labels $50.00

Shipping Weight 450 lbs



No. 7.

‡Goods marked thus (‡) are not carried in stock and can only be furnished by shipment direct from factory.

See Page 1572 for General Description.

‡HARDWARE CABINET COMBINATIONS.

The Following Combinations have a large run, with the General Line of Hardware Dealers, and have given the best satisfaction:

	Per Combination
‡No. 1C—COMBINATION, Nos. 2, 3, 5 and 9 Cabinets, where Cabinets only are wanted.	$250.00
‡No. 2C—COMBINATION, Nos. 1, 3, 4 and 9 Cabinets, where Cabinets only are wanted.	260.00
‡No 3C—COMBINATION, Nos 1 3 4, 5 6 7 8 and 9 Cabinets, where Cabinets only are wanted These seven Cabinets are 37 feet 4 inches Long and can be used on any Base	470.00
‡No 4C—COMBINATION HARDWARE SIDE: 10 feet 8 inches No 150 Wall Case Nos 1, 3 and 4 Cabinets: 26 feet 8 inches No 115 Nail Bin Base, 23 Bins: 26 feet 8 inches of 12 inch Open Shelving above Wall Case and Cabinets to Ceiling. TINWARE SIDE: 26 feet 8 inches No. 125 Tinware Base, 26 feet 8 inches of 16 inch Open Shelving above Base to Ceiling	581.00
‡No. 5C—COMBINATION, HARDWARE SIDE, 12 feet No. 150 Wall Case, Nos 1, 3, 4 and 5 Cabinets; 3 feet No 100 Base 3 feet No. 104 Base, 26 feet 8 inches No. 115 Nail Bin Base, 23 Bins, 33 feet of 12 inch Open Shelving, above Wall Case and Cabinets to Ceiling TINWARE SIDE 33 feet No. 126 Tinware Base, 33 feet of 16 inch Open Shelving, above Base to Ceiling	726.66
‡No 6C—COMBINATION, HARDWARE SIDE 13 feet 4 inches No. 150 Wall Case; Nos 1, 3, 4, 5 and 6 Cabinets; 28 feet No 115 Nail Bin Base, 24 Bins: 3 feet No 100 Base; 3 feet No. 104 Base: 6 feet No. 109 Bolt Base 40 feet of 12 inch Open Shelving above Wall Case and Cabinets to Ceiling. TINWARE SIDE 12 feet No. 155 Wall Case, 16 inches Deep; 12 feet No. 113 Silverware Base 28 feet No. 126 Tinware Base; 12 feet Open Shelving, above Wall Case, 28 feet of 16 inch Open Shelving, above Base to Ceiling	971.33
‡No. 7C—COMBINATION, HARDWARE SIDE: 12 feet 8 inches No. 150 Wall Case: Nos. 1, 3, 4, 6, 6, 7 and 8 Cabinets, 28 feet No. 115 Nail Bin Base, 24 Bins; 6 feet No. 100 Base; 6 feet No. 104 Base; 10 feet No. 109 Base; 50 feet of 12 inch Open Shelving, above Wall Case and Cabinets to Ceiling. TINWARE SIDE: 20 feet No. 155 Wall Case 20 feet No. 113 Silverware Base; 30 feet No. 125 Tinware Base; 20 feet of 20 inches Open Shelving, above Wall Cases to Ceiling: 30 feet of 20 inch Open Shelving above Tinware Base to Ceiling	1272.66

Always Give Running Feet in Ordering Bases.

CONTENTS OF NOS. 1 AND 3 CABINETS.

No 1—Has 11 Chisel Drawers, 48 Auger Bit, 18 Drill Bit, 12 Screw Driver, 4 Comb. Pincer 2 Hoof Pincer, 1 Gas Plier, 3 Comb Plier, 2 Button Plier, 4 Common Plier, 4 Horse Rasp, 5 Flat File, 1 Half-round Wood Rasp, 1 Half-round Cabinet Rasp, 2 Carpenter Pincer, 6 Mill File 6 Half-round File 5 Square File, 6 Round File, 2 Ward File, 4 Cant File 2 Blunt File, 2 G. A. File, 8 Taper File, 8 Slim Taper File, 2 Knife File, 1 Horse-tooth File, 2 Gimlet, 1 Screw Driver Bit, 1 Reamer, 1 Bracket Saw, 1 Deborning Saw Blade 3 Hack Saw Blade 8 Cold Chisel, 6 Machine Punch, 6 Rule, 1 Rivet Set 1 Nail Set 10 Saddler Punch, 1 Expansion Bit, 1 Gimlet Bit, 1 Saw Screw, 89 Screw, 1 Lock Spring, 1 Lock Strike, 2 Cabinet Key, 1 Trunk Key, 1 Padlock Key, 3 Door Key, 3 Door Key Blank 4 Brass Butt 6 Till Lock, 1 Desk Lock, 6 Drawer Lock, 3 Trunk Lock, 6 Chest Lock, 3 Gate Hook and Eye, 1 Wardrobe Lock, 1 Knob Washer, 8 Screw Hook, 7 Screw Eye, 1 Pocket Level, 2 Level Glass, 3 Wing Divider, 3 Gun Material, 1 Line Sinker, 16 Padlock, 3 Furniture Nail, 2 Picture Nail, 2 Picture Hook, 2 Brass Hook and Eye, 4 Brass Screw Hook, 4 Cup Hook, 5 Curtain Ring, 5 Brass Hinge and 22 Miscellaneous, making 433 Drawers in a space 5 feet square.

No 3—Has 3 Broad Axe Drawers, 6 Hatchet 1 Steel Square, 2 Bit Brace, 1 Drawing Knife, 1 Hunter Axe, 1 Plow Hammer, 1 Riveting Hammer, 3 Nail Hammer, 2 Pipe Wrench, 8 Regular Wrench, 1 Revolving Punch, 10 Shelf Brackets, 1 Corner Bracket, 2 Tack Hammer 10 Tack, 6 Copper and Brass Nail, 3 Hasp and Staple, 6 Door Knob, 2 Rim Latch, 6 Mortise Lock, 2 Mortise Latch, 2 Store Door Lock, 1 Store Door Latch, 1 Sliding Door Lock, 2 Night Latch, 18 Door Butt, 1 Mortise Door Bolt, 3 Chain Door Fast, 3 Barrel Bolt, 2 Foot Bolt, 2 Hinge Hasp, 1 Hasp Lock, 4 Hook and Staples, and 7 Miscellaneous, making 127 Drawers in a space 5 feet square.

‡Goods marked thus (‡) are not carried in stock and can only be furnished by shipment direct from factory

See Page 1572 for General Description.

Specifications for Hayward Buckets

ORANGE-PEEL TYPE

The Hayward Orange-peel Bucket is constructed with three or more curved triangular blades, and when closed forms a tight semi spherical bowl, which contains the excavated material

When open, the blades resemble sharp spades, and are so adjusted that the maximum digging effect is produced, with but a slight tendency to lift the bucket while closing

Horizontal arms are riveted to the blades, and their inner ends are attached to a central block or casting with suitable bolts, having special bushings for reducing the wear, while the outer ends are hinged to the vertical connecting rods, which are pivoted at their upper ends to the upper center block or casting.

The power wheel for closing the bucket is secured to the lower central casting, and is eccentric in shape, so that it gives its maximum power just as the bucket commences to close. It is well braced and the shaft is extended on either side to receive the cams, to which are attached the two power chains. An idler sheave is attached to the upper casting to deflect the closing chain, the supporting or backing chain being attached to the upper casting on the opposite side

The materials used are of the best quality. The blades, blade arms, and connecting rods are of flange steel. The upper and lower center blocks are substantial castings. All bolts and pins are of Norway iron, and their bushings are of steel, or of bronze if so ordered The power wheel bearings are phosphor-bronze. All similar sections and parts of buckets are interchangeable and are numbered and lettered, a reference to which, with the number of the bucket which will be found on the power-wheel frame, being all that is necessary in ordering any part. The standard blades for all buckets have removable cast-steel points, which add greatly to the life of the blades.

A new feature of the 1907 bucket is the oscillating head, which allows the bucket to hang central under all conditions These heads are now used on all styles of Hayward Orange-peel Buckets

Power wheels are made to operate by wire rope or chain. Guards for both are shipped with buckets without charge

CLAM-SHELL TYPE

The Hayward type of Clam-shell Bucket is made of two shells, or blades. Vertical arms are riveted on either side of the blades, and their upper ends are connected to the main shaft on which the power wheel for closing the bucket is located The outer ends of the blades are fitted with lugs which receive vertical connecting rods, which are pivoted at their upper ends to the upper center block or casting. The power wheel and cams are made of one casting

The upper center casting is so constructed that the four connecting rods work from one center allowing the casting to oscillate and the bucket to hang central under all conditions. An idler sheave is attached to the upper casting to deflect the closing chain, the supporting or backing chain being attached to the upper casting on the opposite side.

The materials used are of the best quality. The blades and blade arms are of flange steel, the upper center and power wheel are substantial castings, the connecting rods are of steel, and all bolts and pins are of Norway iron.

All similar sections and parts of the buckets are interchangeable, and are made on the duplicate part system and are bushed throughout with phosphor-bronze bushings, which can be replaced when worn, without the aid of a mechanic.

All styles of Clam-shell Buckets are so constructed that either wire rope or chain may be used for operating. In ordering, state whether chain or rope is to be used, so the proper power wheel and guards may be furnished.

The shoes are made of plate steel so constructed that they form a shoulder on either side of the blades. They are riveted to the blades and may be easily replaced when worn.

REGULAR HAYWARD ORANGE-PEEL BUCKETS

For general description see opposite page. The general construction of the Regular Orange peel Bucket differs from that of the Standard type only in the shape of the blade arms.

The blade arms are curved at their inner end to allow the use of a larger lower head.

Capacity	Approximate Weight in Lbs.	Closed Diam., Ft. In.	Closed Height, Ft. In.	Open Diam., Ft. In.	Open Height, Ft. In.	Price
[illegible] Cubic Feet	2350	4 6	6 6	5 8	7 3	$ [illegible]
21 " "	3750	5 0	7 9	6 4	8 6	[illegible]
1 " Yard	4200	5 8	8 0	6 10	9 0	[illegible]
1¼ " Yards	4750	6 0	8 3	7 3	9 6	[illegible]
[illegible] " "	7250	6 4	9 6	8 0	10 9	[illegible]
[illegible] " "	[illegible]	7 0	10 [illegible]	8 [illegible]	11 [illegible]	[illegible]
[illegible] " "	9500	7 8	10 4	9 4	11 9	[illegible]
3 " "	10000	8 0	10 8	9 10	12 3	2150.00

Prices F. O. B., Warren, Ohio.

STANDARD HAYWARD ORANGE-PEEL BUCKETS

A general description of this type of bucket will be found on opposite page.

The [illegible] connecting the blades with the lower center casting are straight, thus allowing a greater amount of clearance under and in the bucket when closing and closed.

Capacity	Approximate Weight in Lbs.	Closed Diam., Ft. In.	Closed Height, Ft. In.	Open Diam., Ft. In.	Open Height, Ft. In.	Price
1 Cubic Foot	[illegible]	[illegible]	2 6	2 2	[illegible]	$ [illegible]
[illegible] " Feet	[illegible]	[illegible]	3 [illegible]	3 [illegible]	[illegible]	[illegible]
[illegible]	[illegible]	3 2	4 [illegible]	4 0	[illegible]	[illegible]
7	[illegible]	[illegible]	[illegible]	4 3	[illegible]	[illegible]
6	[illegible]	[illegible]	5 2	4 8	[illegible]	[illegible]
[illegible]	[illegible]	4 [illegible]	6 4	5 0	[illegible]	[illegible]
[illegible]	[illegible]	4 [illegible]	9 6	5 6	7 3	[illegible]
21	[illegible]	5 0	7 9	6 4	8 6	1000 00
1 Yard	[illegible]	[illegible]	8 6	6 10	[illegible]	1050 00
1¼ " Yards	[illegible]	6 0	8 [illegible]	7 [illegible]	[illegible]	[illegible]
1½	[illegible]	6 4	[illegible]	8 0	[illegible]	[illegible]
2	[illegible]	7 1	10 0	8 6	[illegible]	1750.00
[illegible]	[illegible]	7 8	10 4	9 [illegible]	[illegible]	1950 00
3	[illegible]	8 0	10 8	9 10	[illegible]	2150 00

Prices on buckets up to and including 9 cubic feet are F. O. B., New York N. Y., other sizes F. O. B., Warren, Ohio.

EXTRA-HEAVY HAYWARD REGULAR ORANGE-PEEL BUCKETS

For general description see opposite page. This style of bucket is designed for heavy and rough work. The blades and blade arms are made of heavier plate than those used on the Regular Bucket. The blade arms are built with reinforced plates and the power wheel shaft is fitted with outside bearings.

Capacity	Approximate Weight in Lbs.	Closed Diam., Ft. In.	Closed Height, Ft. In.	Open Diam., Ft. In.	Open Height, Ft. In.	Price
21 Cubic Feet	4200	5 0	7 9	6 4	8 6	$1050 00
1 " Yard	4750	5 8	8 0	6 10	9 0	1200 00
1¼ " Yards	5500	6 0	8 3	7 3	9 6	1350 00
1½ " "	8500	6 4	9 6	8 0	10 9	1800 00
2 " "	9500	7 0	10 0	8 6	11 3	2000 00
[illegible]	[illegible]	7 [illegible]	10 4	[illegible]	[illegible]	[illegible]
3 " "	11500	8 0	10 8	9 10	12 3	2400 00
4 " "	18000	8 10	12 6	10 6	14 3	3800 00
5 " "	20000	9 6	13 0	11 4	14 9	4000 00

Prices F. O. B., Warren, Ohio.

EXTRA-HEAVY HAYWARD STANDARD ORANGE-PEEL BUCKETS

For general description see page 89. The Extra-heavy Standard Bucket is designed for the same purposes as the Extra-heavy Regular Bucket referred to on page 90, the main difference being the construction of the blade arms, which in this type of bucket are straight instead of curved at the inner ends.

Capacity	Approximate Weight in Lbs.	Closed Diameter Ft. In.	Closed Height Ft. In.	Open Diameter Ft. In.	Open Height Ft. In.	Price
.21 Cubic Feet	4200	5 0	7 9	5 4	8 8	$ [illegible]
1 " Yard	4750	5 8	8 0	6 10	9 0	1200.[illegible]
1¼ " Yards	5500	6 0	8 3	7 3	[illegible]	[illegible]
1½ " "	6500	6 4	9 6	8 0	10 9	1800 [illegible]
2 " "	9500	7 0	10 0	8 6	11 3	[illegible]
2½ " "	10500	7 8	10 4	9 4	11 9	[illegible]
3 " "	11500	8 0	10 8	9 10	12 3	[illegible]
4 " "	18000	8 10	12 6	10 6	14 3	[illegible]
5 " "	20000	9 6	13 0	11 4	14 9	4000.00
6 " "	22000	10 0	14 3	12 8	16 0	4400.00
8 " "	26000	11 4	15 0	13 8	17 0	5200.00
10 " "	30000	12 0	16 0	14 6	18 0	6000.00

Prices F. O. B. Warren, Ohio.

"THREE-SIDED" HAYWARD ORANGE-PEEL BUCKETS

This style of bucket is especially adapted for the handling of boulders, broken rock and other odd-shaped material, which present uneven surfaces and are difficult to hold unless an even force is exerted on each bearing part.

The three blade points of this style of bucket coming in contact with a boulder, etc., will either force it to the side of the bowl, or will grasp the object in such a manner that the holding force will be positive and the strain will be equally divided throughout the entire bucket.

Capacity	Approximate Weight in Lbs.	Closed Diameter Ft. In.	Closed Height Ft. In.	Open Diameter Ft. In.	Open Height Ft. In.	Price
[illegible] Cubic Feet	4200	5 0	7 11	6 4	8 8	$1,100.00
[illegible] Yard	4750	5 8	8 2	6 10	9 2	1275.00
[illegible] Yards	5500	6 0	8 6	7 3	9 9	1450.00
[illegible]	6500	6 4	9 10	8 0	11 1	2000.00
2	9500	7 0	10 4	8 6	11 7	2250.00
[illegible]	10500	7 8	10 8	9 4	12 1	[illegible]

MULTI-POWER HAYWARD ORANGE-PEEL BUCKETS

Are constructed along the lines of the Regular Orange-peel Bucket. The closing power, however, is multiplied by leading the closing chains over sheaves in the head of the bucket. By this means greater closing power is gained. Buckets of this type are particularly adapted for digging clay and other materials of similar nature.

Capacity	Approximate Weight in Lbs.	Closed Diameter Ft. In.	Closed Height Ft. In.	Open Diameter Ft. In.	Open Height Ft. In.	Price
.21 Cubic Feet	4200	5 0	7 9	6 4	8 8	$1,050.00
1 " Yard	4750	5 8	8 0	6 10	9 0	1200.00
[illegible] " Yards	5500	6 0	8 3	7 3	9 6	1300.00
1½ " "	6500	6 4	9 6	8 0	10 9	1800.00
2 " "	9500	7 0	10 0	8 6	11 3	2000.00
2½ " "	10500	7 8	10 4	9 4	11 9	2200.00
3 " "	11500	8 0	10 8	9 10	12 3	2400.00
4 " "	18000	8 10	12 6	10 6	14 3	3600.00
5 " "	20000	9 6	13 0	11 4	14 9	4000.00

Prices F. O. B., Warren, Ohio.

CLASS "C" HAYWARD CLAM-SHELL BUCKETS

The accompanying illustrations show the Class "C" Clam-shell Bucket, which is fitted with round link side chains and forged connecting rods of improved type.

On this style of bucket a cross brace guard is used for keeping the rope or chain on the power wheel.

Buckets of this description are used for handling all classes of loose material.

Before ordering, see description on page 89.

Capacity Cubic Yards	Approximate Weight in Lbs.	Open Width, Ft. In	Open Height, Ft. In	Open Length Ft. In	List Price
[illegible]	2000	[illegible]	[illegible]	[illegible]	$[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Prices F. O. B. New York, N. Y.

CLASS "E" HAYWARD CLAM-SHELL BUCKETS

The construction of Class "E" Clam-shell Bowl is similar to that of the Class "C" type. The connecting rods are reinforced and fitted with a central bearing. The side chains are made of flat links, so constructed that the power is constant at all times during the closing of the bucket. A swinging guard is attached to the power wheel shaft. This type has proven the most effective means of keeping the operating line on the power wheel. If chain is used the cross brace guard is substituted. This style of bucket is used for handling heavier material than the Class "C" type.

Before ordering, see description on page 89.

Capacity Cubic Yards	Approximate Weight in Lbs.	Open Width Ft. In	Open Height Ft. In	Open Length Ft. In	List Price
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	$[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1½	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1¾	4000	[illegible]	[illegible]	[illegible]	[illegible]
2	4700	[illegible]	[illegible]	[illegible]	[illegible]
2½	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3	6500	[illegible]	[illegible]	[illegible]	[illegible]
4	9000	6 0	10 1	11 6	[illegible]
5	[illegible]	7 0	11 3	[illegible]	[illegible]

Prices F. O. B., New York, N. Y.

CLASS "H" HAYWARD CLAM-SHELL BUCKETS

This type of bucket is designed to handle heavier and rougher materials than the Class "C" or Class "E" types.

Flat link side chains are used and by leading them over sheaves in the head of the bucket, as shown, the closing power is materially increased.

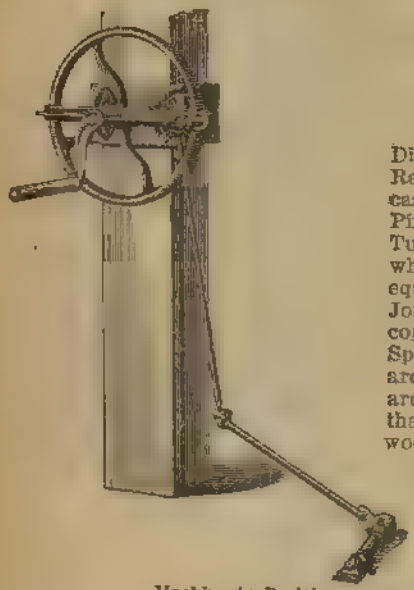
The construction of the connecting rods is the same as used on the Class "E" bucket. Before ordering, see description on page 89.

Capacity Cubic Yards	Approximate Weight in Lbs.	Open Width Ft. In.	Open Height, Ft. In.	Open Length Ft. In	List Price
[illegible]	[illegible]	[illegible]	8 0	8 6	$[illegible]
[illegible]	[illegible]	[illegible]	8 6	8 6	[illegible]
2	[illegible]	7 [illegible]	8 [illegible]	8 6	[illegible]
2½	[illegible]	[illegible]	10 [illegible]	[illegible]	[illegible]
3	[illegible]	[illegible]	10 [illegible]	[illegible]	[illegible]
4	[illegible]	6 [illegible]	11 [illegible]	[illegible]	[illegible]
5	[illegible]	7 [illegible]	[illegible]	[illegible]	[illegible]

Prices F. O. B. New York, N. Y.

TRADE MARK.
E. C. SIMMONS' KEEN KUTTER.
REGISTERED.

HAND POWER SHEEP SHEARING MACHINES.



Machine in Position.

Solid Cast Iron Frame, Painted Blue; Diameter of Large Wheel 18 inches, Painted Red; Teeth are Milled from Solid Metal (not cast), and engage with Hardened Steel Pinion; Pinion Shaft is Provided with a Turned Balance Wheel, Diameter 4 inches, which, revolving at great speed completely equalizes the motion; ¾ inch Universal Joint Flexible Shaft, length 3⅔ feet, to the cogs of which are connected Solid Steel Spindles running in Tubular Sheaths, and are connected together by Joints; Cutters are of Improved Pattern and are so made that they will easily penetrate any kind of wool.

Showing Knife.

	Each
No. 1904—STEWART'S PATENT, Complete with 4 Combs and 4 Cutters; Weight complete about 70 lbs	$12.75
Extra Top Plates for No. 1904. Width 2¼ inches	.50
Extra Bottom Plates for No. 1904. Width 2¾ inches	.50

‡ *No 1904H—With Horse Clipping Attachment, which can be supplied with this Machine, consisting of Three-legged Stand, Tubular Upright, Flexible Shaft and Horse Clipper Knife and Handle. This Attachment can only be supplied when ordered with Sheep Shearing Machine, making Combination Outfit for Horse Clipping and Sheep Shearing; Weight complete about 70 lbs* *$18 50*

One in a Wood Box.

ROACHING SHEARS.

KEEN KUTTER No 20.
Are the desired shape to do the work properly and quickly.

	Per Dozen
No. 20—*KEEN KUTTER**. Length over all 8½ inches; Highest Grade Crucible Steel Curved Blades, Glazed Finish, Polished Steel Handles with Leather Covered Bows, Hand Stitched; Weight per dozen about 3 lbs	$30 00
No. 1598—Length over all 7 inches; Crucible Steel Blades, Glazed Finish; Leather Covered Bows; Weight per dozen about 3 lbs	15.00

One-half Dozen in a Cardboard Box.

	Per Dozen
No. 23—R. HEINISCH'S; Length over all 9 inches; Extra Quality Crucible Steel Blades, Glazed Finish; Japanned Handles; Weight per dozen about 6 lbs	$36.00

One-half Dozen in a Cardboard Box.

‡ *Goods marked thus (‡) are not carried in stock and can only be furnished by shipment direct from factory.*

HAND POWER HORSE CLIPPERS.

Nos. 973 and 974

Showing Knife and Handle.

20th Century.

Solid Cast Iron Tripod Base, Painted Maroon; ½ inch Tubular Upright, Painted Blue, allowing Adjustment of the Wheel to any desired height; Diameter of Large Wheel 30 inches; Anti-Friction Roller Bearing; Gear Head is Self Containing, obviating noise, and excluding dust, attached to a ¾ inch Tubular Rod; Length over all 5 feet 5 inches; ¼ inch Leather Belt, Tension of which can be regulated by a Set Screw; Cutters or Knives are One Nut, Balance Pressure, Dust-proof Type; Extreme height to Top of Large Wheel 4½ feet.

Each

No. 973—Chicago Hand Power; Complete with Two Sets of 3-inch Knives and Handles; 1⅛ inch Flexible Steel Shaft, 6½ feet long; Weight each, boxed, about 125 lbs. $20.00

No. 974—Same as above, except with 4-inch Knives; Weight each, boxed, about 125 lbs. 20.00

One in a Box

EXTRA PARTS For Nos. 973 and 974 Clippers.

Each

Handle for 3-inch Knife; Weight 10 oz. $1.00

Handle for 4-inch Knife; Weight 10 oz. 1.00

Per Foot

Flexible Shaft; Weight per foot 1 lb. $0.75

Each

Top Plates $1.00

Bottom Plates 1.50

Packed Loose.

Solid Cast Iron Frame, Painted Black; Suspended from the ceiling by a rope, permitting all parts of the Horse to be reached with facility; Diameter of large Wheel 12 inches; Positive Gear Drives, made of Solid Steel, not Cast; Cutters or Knives are One Nut, Balance Pressure, Dust-proof Type.

Each

20th Century Hand Power Horse Clippers, with One Set of Three-inch Knives and Handle; 1½ inch Flexible Steel Shaft 5½ feet long, Canvas Covered; Weight each, boxed, about 70 lbs. $5.00

One in a Box

EXTRA PARTS For 20th Century Clippers.

Each

Handle for 3-inch Knife; Weight 10 oz. $1.00

Per Foot

Flexible Shaft; Weight per foot 1 lb. $0.75

Each

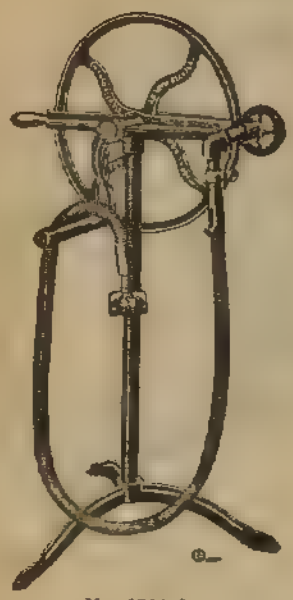
Top Plates $1.00

Bottom Plates 1.50

Packed Loose.

NOTE.—For all other Extra Parts see page 758.

HAND POWER HORSE CLIPPERS.



No. 1902/3.

Showing Knife used on No. 1902 and No. 1905 Clippers.

No. 1905/3.

Solid Cast Iron Tripod Base, Maroon Color; 1¼ inch Tubular Upright, Blue Color; Diameter of Large Wheel 18 inches; Teeth are milled from Solid Metal (not cast), and engage with a Hardened Steel Pinion; Pinion Shaft is provided with a Turned Balance Wheel, Diameter, 4 inches, which, revolving at a great speed, completely equalizes the motion. The opposite end of the Pinion Shaft carries a quarter turn box, completely closed and dust-proof (the revolving members of which run constantly in oil), to which the Flexible Shaft is attached; 1-inch, all Steel, Flexible Shaft, Canvas Covered; Cutters or Knives are One Nut Balance Pressure, Dust-proof Type; Height over all 3 feet 10 inches.

Each

No. 1902/3—STEWART'S Patent Cut Gear, Hand Power, complete with one Set 3-inch Knives and Handle, and 6½ feet of Flexible Shaft; Weight each about 70 lbs. $10.75

No. 1902/4—Same as No. 1902/3, except with 4-inch Knives; Weight each about 70 lbs. 10.75

Solid Cast Iron Tripod Base; 1 inch Tubular Upright; Painted Black; all Gears are from Solid Metal (not cast), and are inclosed in a Dust Proof Metal Box; they run constantly in oil, which reduces friction to a minimum; ⅝ inch, all Steel, Flexible Shaft, Canvas Covered; Cutters or Knives are One Nut, Balance Pressure, Dust-proof Type; Height over all 3 feet 3 inches.

Each

No. 1905/3—NEW STEWART Inclosed Gear Hand Power, Complete with One Set 3-inch Knives and Handle, and 6½ feet Flexible Shaft; Weight each about 36 lbs $6.75

No. 1905/4—Same as No. 1905/3, except with 4-inch Knives; Weight each about 36 lbs 6.75

Shipped Knocked Down, One in a Case.

EXTRA PARTS For 1902/3, 1902/4, 1905/3, 1905/4 Clippers.

	Each
Handle for 3-inch Knife; Weight 10 ozs.	$1.00
Handle for 4-inch Knife; Weight 10 ozs.	1.00
Top Plates, 3-inch	1.00
Top Plates, 4-inch	1.00
Bottom Plates, 3-inch	1.50
Bottom Plates, 4-inch	1.50

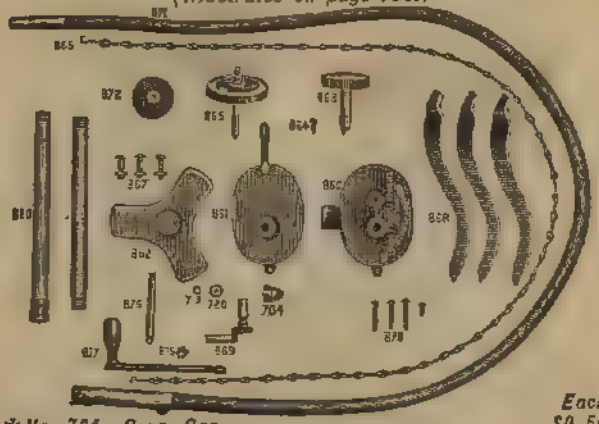
Packed Loose

NOTE.—For all other Extra Parts see page 759.

‡EXTRA PARTS FOR HAND POWER HORSE CLIPPERS.

For 1905-3, and 1905-4 Horse Clippers.

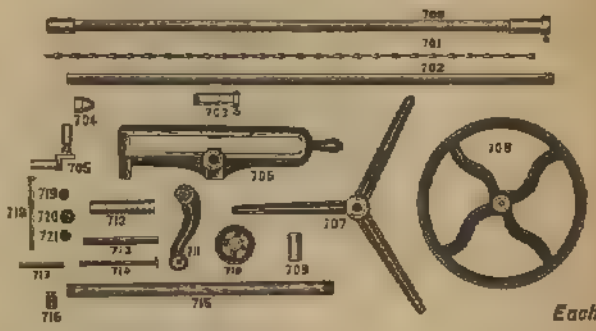
(Illustrated on page 758.)



	Each
‡No. 704—Gear Cap	$0.50
‡No. 705—Gear Head Casting	1.50
‡No. 719—Small Cog	.25
‡No. 720—Large Cog	.50
‡No. 860—Gear Case	1.00
‡No. 861—Gear Case Cover	.75
‡No. 862—Leg Bracket	.35
‡No. 863—Drive Gear and Spindle	1.50
‡No. 864—Cutter Pin	.02
‡No. 865—Balance Wheel and Spindle	1.00
‡No. 866—Chain per foot	.30
‡No. 867—Bracket Studs and Nuts per set	.15
‡No. 868—Legs	.35
‡No. 870—Gear Case Screws each	.05
‡No. 871—Shaft without Chain per foot	.50
‡No. 872—Intermediate Gear and Pinion	2.00
‡No. 875—Handle Nut	.05
‡No. 876—Eye Spindle	.50
‡No. 877—Crank Handle	.50
‡No. 879—Upper Part of Upright	.40
‡No. 880—Lower Part of Upright with Coupling	.60

For 1902-3, and 1902-4 Horse Clippers.

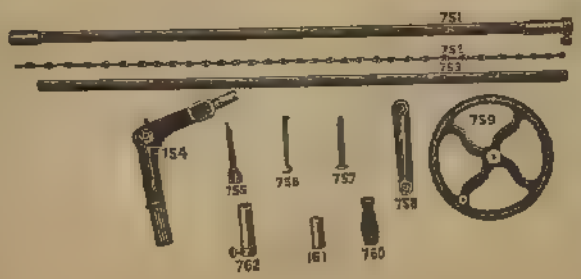
(Illustrated on page 758.)



	Each
‡No. 700—Shaft without Chain 6½ ft.	$3.25
‡No. 701—Chain for Shaft 6½ ft.	1.95
‡No. 702—Spiral Spring (without Cover)	1.80
‡No. 703—Top Sleeve	.50
‡No. 704—Gear Cap	.50
‡No. 705—Gear Head Casting	1.50
‡No. 706—Bracket	2.00
‡No. 707—Tripod	2.00
‡No. 708—Drive Wheel	2.50
‡No. 709—Bottom Sleeve	.25
‡No. 710—Balance Wheel	1.00
‡No. 711—Crank	.50
‡No. 712—Wood Handle	.15
‡No. 713—Axle	.50
‡No. 714—Handle Bolt	.25
‡No. 715—Upright	1.00
‡No. 716—Pinion	.50
‡No. 717—Eye Spindle	.50
‡No. 718—Pinion Shaft	.50
‡No. 719—Small Cog	.25
‡No. 720—Large Cog	.50
‡No. 721—Hexagon Nut for Handle Bolt	.05

For 20th Century Horse Clippers.

(Illustrated on page 757.)

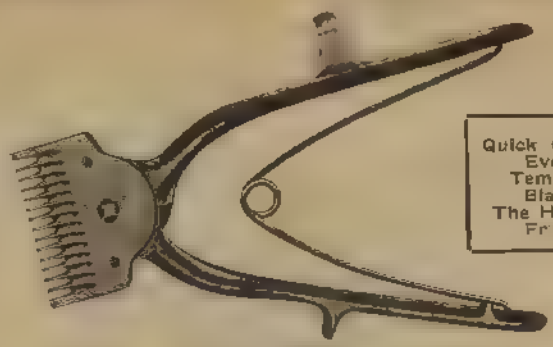


	Each
‡No. 751—Shaft with Chain	$3.40
‡No. 752—Chain	1.35
‡No. 753—Shaft without Cover per foot	.30
‡No. 754—Bracket Arm	.50
‡No. 755—Cog and Spindle	.50
‡No. 756—Handle Bolt and Nut	.10
‡No. 757—Axle	.25
‡No. 758—Hanger	.25
‡No. 759—Drive Wheel	1.75
‡No. 760—Wood Handle	.15
‡No. 761—Small Sleeve	.25
‡No. 762—Large Sleeve	.50

‡Goods marked thus (‡) are not carried in stock and can only be furnished by shipment direct from factory.

TRADE MARK: E. C. SIMMONS KEEN KUTTER REGISTERED

FETLOCK CLIPPERS.



Quick Cutting. Evenly Tempered Blades. The Hostlers' Friend.

KEEN KUTTER

No. K810—First Quality Malleable Iron Handles Full Nickel Plated, Ball Bearing, Length over all 6¾ inches, Highest Grade Crucible Tempered Steel Top and Bottom Plates Carefully Ground and Set, Corrugated Bottom Plate 1⅞ inches Wide; Coarse Teeth (8 to the inch), to cut hair to ⅛ inch; Weight each about ½ lb. ..... Each $2.50

Extra Parts for No. K810 Fetlock Clippers.

	Each
No. K810TP Top Plates	$1.00
No. K810BP—Bottom Plates	1.25
	Per Dozen
No. K810/S—Springs	$1.75

S. H. CO.'S.

No. 800 Malleable Iron Handles; Full Nickel Plated, Length over all 6 inches Extra Quality Crucible Steel Top and Bottom Plates Highly Tempered Plain Bottom Plate 1⅞ inches Wide, Coarse Teeth 8 to the inch) to cut hair to ⅛ inch; Weight each about ½ lb... Each $2.00

Extra Parts for No. 800 Fetlock Clippers.

	Each
No. 800TP—Top Plates	$0.85
No. 800BP Bottom Plates	1.00
	Per Dozen
No. 800/S—Springs	$1.75

Clippers One in a Box; Extra Parts Packed Loose.

HAND POWER SHEEP SHEARING MACHINES.

No. 1906.

Solid Cast Iron Tripod Base; 1¼ inch Tubular Upright; Painted Black; All Gears are from Solid Metal (not cast) and are enclosed in a Dust Proof Metal Box, They run constantly in oil which reduces friction to a minimum ¾ inch Universal Link Flexible Shaft, Length 3½ feet, to the Cogs of which are connected Solid Steel Spindles running in Tubular Sheaths, and are connected together by Joints; Cutters are of Improved Pattern and are so made that they will easily penetrate any kind of wool.

Showing Knife.

	Each
No. 1906—STEWART'S Enclosed Gear. Complete with 4 Combs and 4 Cutters Weight complete about 40 lbs	$9.75
Extra Top Plates for No. 1906; Width 2¼ inches	.50
Extra Bottom Plates for No. 1906; Width 2¾ inches	.50

One in a Wood Box.

HORSE SHOES.

IRON.

Burden's New Extra Light Front.

Nos.	1	2	3	4	5
Weight each, ozs.	13	15	18	22	25
Number in a keg	123	103	86	73	63
Per keg $	....	....	....	....	....

Burden's New Extra Light Hind.

Nos.	0	1	2	3	4	5
Weight each, ozs.	10	11	13	16	20	23
Number in a keg.	200	152	123	100	82	70
Per keg $	....	....	....	....	....	....

100 lbs. in a Keg; Straight Sizes.

Burden's New Extra Light Front and Hind.

Assorted; Half Front, Half Hind.

Nos.	1	2	3	4	5
Per keg $					

100 lbs. in a Keg, Assorted

Burden's New Light Front.

Nos.	0	1	2	3	4	5	6
Wgt. each ozs.	12	14	17	20	24	29	35
Number in a keg	133	114	94	89	67	55	46
Per keg $	....	....	....	....	....	....	....

Burden's New Light Hind.

Nos.	0	1	2	3	4	5	6
Weight each ozs.	10	12	15	18	22	26	30
Number in a keg	160	133	107	89	73	62	53
Per keg $	....	....	....	....	....	....	....

100 lbs. in a Keg; Straight Sizes.

Burden's New Light Front and Hind.

Assorted, Half Front, Half Hind

Nos.	1	2	3	4	5	6
Per keg $	....	....	....	....	....	....

Burden's New Light Hind.

Assorted Numbers.

Nos.	1 and 2	2 and 3	1, 2 and 3	2, 3 and 4	3 and 4
Per keg $					

100 lbs. in a Keg; Assorted.

Burden's New Light Front and Hind.

Assorted Front and Hind; Assorted Numbers.

Nos.	2 and 3	3 and 4	1, 2 and 3	2, 3 and 4	3, 4 and 5
Per keg $					

100 lbs. in a Keg; Assorted.

SOLD ONLY IN FULL KEGS.

TRADE MARKS: "SUNSET" AND "RANCHMEN'S," REGISTERED.

HORSE SHOES.

SUNSET* AND RANCHMEN'S.*

Made of Special Soft Steel, Produced Solely for this Purpose.

SUNSET* Shoes; Beveled; With Nail Holes Punched Out and Heel Calks Turned up; Ready for Use.

Nos	00	0	1	2	3
Weight each, ozs.	9	10	12	14	17
Number in a keg	178	160	133	114	94
Per keg ...$	....	....		.	. . .

RANCHMEN'S* Shoes; Beveled; With Nail Holes Punched Out; Without Heel Calks.

Nos.	00	0	1	2	3
Weight each, ozs.	8	9	11	13	15
Number in a keg	200	178	145	123	107
Per keg ...$	....	....	....	....	.

100 lbs. in a Keg; Straight Sizes.

Juniata Light Pattern; Short Heel.

Made of Special Soft Steel, Produced Solely for this purpose.

Juniata Front.

Nos	0	1	2	3	4	5
Weight each, ozs.	11	14	17	20	25	29
Number in a keg	145	114	94	80	64	55
Per keg ...$	....	....	....	....	....	....

Juniata Hind.

Nos.	0	1	2	3	4	5
Weight each, ozs.	9	11	14	18	22	27
Number in a keg	178	145	114	89	73	59
Per keg ...$	..	....	.. .	...	....	. .

100 lbs. in a Keg; Straight Sizes.

Juniata Front and Hind.

ASSORTED; HALF FRONT; HALF HIND.

Nos.	0	1	2	3	4	5
Per keg ...$	....	....	.. .	....	....	. . .

100 lbs. in a Keg; Assorted Front and Hind.

Juniata Hind.

ASSORTED NUMBERS.

Nos.	1, 2 and 3	2 and 3	2, 3 and 4
Per keg ...$		.	... ...

100 lbs. in a Keg, Assorted Sizes

Juniata Front and Hind.

ASSORTED FRONT AND HIND ASSORTED NUMBERS.

Nos	1, 2 and 3	2 and 3	2, 3 and 4
Per keg ...$	.	.	. .

100 lbs. in a Keg; Assorted Sizes.

SOLD ONLY IN FULL KEGS.

MULE SHOES.

Juniata; STEEL; LIGHT PATTERN.

Made of Special Soft Steel, Produced Solely for this Purpose.

Nos.	0	1	2	3	4	5
Weight each, ozs.	9	12	14	16	23	27
Number in a keg	176	133	114	100	70	59
Per keg ..... $	....	....	....	....	....	....

Burden's IRON.

Nos.	0	1	2	3	4	5	6
Weight each, ozs.	9	12	14	16	23	27	30
Number in a keg	178	133	114	100	70	59	53
Per keg ..... $	....	....	....	....	....	....	....

100 lbs. in a Keg; Assorted Sizes.

Juniata; Assorted Numbers.

Nos.	1, 2 and 3	2, 3 and 4
Per keg ..... $	.....	.....

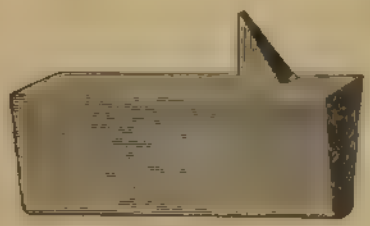
Burden's; Assorted Numbers.

Nos.	1, 2 and 3	2, 3 and 4
Per keg ..... $	....	.....

100 lbs. in a Keg; Assorted Sizes.

SOLD ONLY IN FULL KEGS.

TOE CALKS.



Country.

City.

Juniata: Country Pattern; Bessemer Steel.

Nos.	1	2	3	4	5	6
Size, inches	1½x⅛	1¾x⅝	2x¾	2¼x⅞	2½x⅞	2½x1
Average No. Calks to the lb.	17	12	8	6	5	4
Per lb.	$0.09	.09	.09	.09	.09	.09

Juniata: City Pattern; Bessemer Steel.

Nos.	1	2	3	4	5	6
Size, inches	1½x⅛	1¾x⅝	2x¾	2¼x⅞	2½x⅞	2½x1
Average No. Calks to the lb.	15	10	7	5	4	3
Per lb.	$0.09	.09	.09	.09	.09	.09

Twenty-five Pounds in a Wood Box.

NOTE.—The Same Number of Toe Calk is Generally Used for the Same Number of Horse Shoe. In the Cold Climate, where there is Considerable Ice and Snow, Sharp Toe Calks are Used. Blunt or City Toe Calks are Usually Used in Large Cities where there is Heavy Traffic, but in the Country Districts where Medium Sized Shoes are Mostly used the Medium or Country Toe Calk is Preferred. The Medium or Country Pattern serve the all-round Purpose the Best.

TRADE MARK: "J. L. C." REGISTERED.

HORSE SHOE NAILS.

J. L. C.* Racer.

Cold Rolled; Regular Pattern; Finished.

Made of Open Hearth Steel, Cold Rolled Process, from Head to Point, which Toughens the Nail and Adds **Largely to the Tensile Strength.**

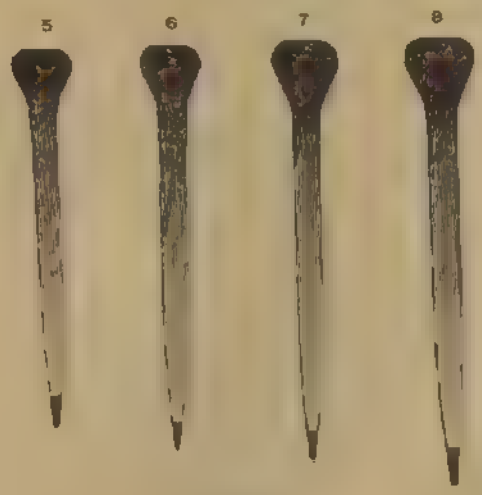
Nos.	5	6	7	8	9
Per lb	$0.26	.23	.21	.20	.19

Star.

Regular Pattern.

Made of Open Hearth Steel Cold Forged

Nos.	5	6	7	8	9
Per lb	$0.26	.23	.21	.20	.19



DEXTER.*

Regular Pattern; Finished.

Hot Forged Basic Steel.

Nos.	5	6	7	8
Per lb	$0.20	.19	.17	.16

Ausable.*

Regular Pattern; Finished.

Made of Open Hearth Steel, Hot Forged; Cold Point.

Nos.	4	5	6	7	8
Per lb	$0.30	.31	.28	.26	.25

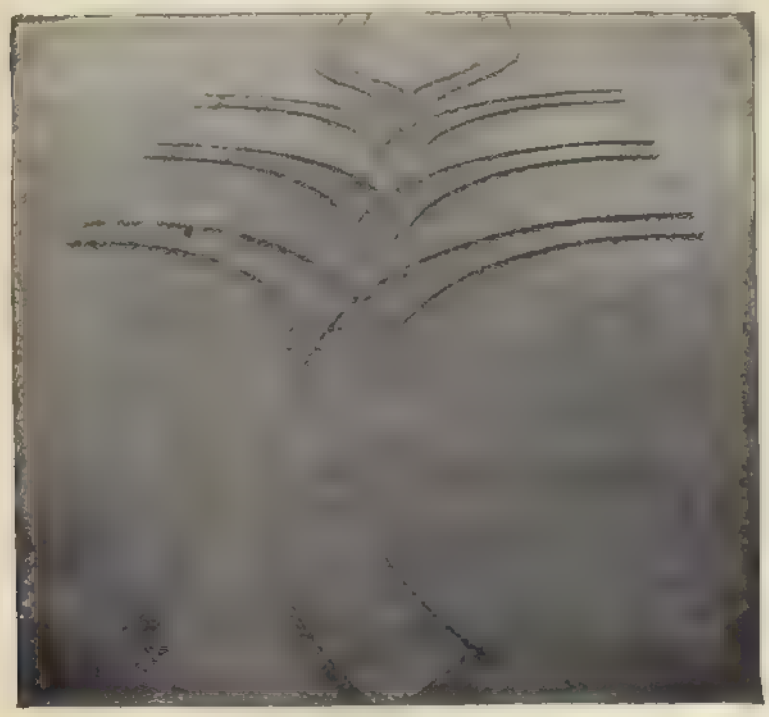
5 lbs. in a Paper Box; 25 lbs. in a Wood Box.

Cuts Full Size.

INDUSTRIAL RAILWAYS

The advantages of industrial railways for many different situations we will not comment upon. The reduction in the cost of handling material consequent to their use is a well known and established fact.

We have been making the subject of industrial railways a study for years, and are now prepared to furnish them of the highest efficiency at the least expense.



We are prepared to furnish industrial railways made of steel rail, with wrought iron cross ties, with all appurtenances, as curves, frogs, crossings, turntables, etc.

Standard Sectional Track

Our Standard Track is made in twenty to twenty-four (20 to 24) foot lengths of steel rails, secured to wrought iron ties both of proper strength to obtain durability. The sections of track are made up at our works, ready for shipment, thereby avoiding the annoyances to the purchaser of any delicate adjustment when laying the same. The track being secured to the cross ties makes the gauge absolutely correct. The gauge of our track is generally made 24 inches between the inner side of rail heads; this, of course, can be varied. Should it be desirable to furnish the track and iron ties separately, to reduce the freight to distant points, we can make up a track for those conditions, so as to give the purchaser the least possible trouble in putting it together.

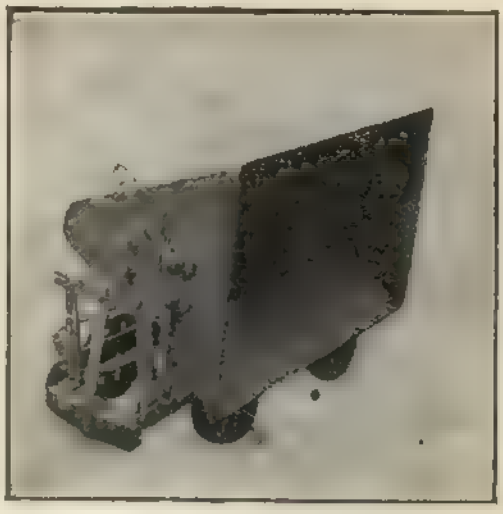
We wish to call particular attention to the solid wrought iron ties. Industrial track is sometimes furnished with hollow steel ties, but we have found by experience that they easily rust out, and cannot be compared with heavy wrought metal ties, which will last for years.

In asking for prices on our system of tracks, it will be necessary for the purchaser to acquaint us with all points in the case; that is to say, length of track desired and maximum load to be carried on each car, radii of curves, style of switches, etc.

To figure intelligently on this system of railways, sketches with accurate dimensions should be mailed to us.

We will be glad to answer any inquiry and make prompt quotations.

STEEL TIP CARS FOR INDUSTRIAL RAILWAYS



Adaptable for conveying materials, whether solid or in pasty or liquid form. The sides of the car body are inclined, making it top-heavy, and securing rapid dumping of the contents when tipped. To the body of the car are fixed side plates, which carry four pins, which constitute bearings for the body of the car. By virtue of this construction, the top-heaviness does not affect the equilibrium of the car, but secures easy tipping and clean and rapid dumping.

No.	Capacity Cu. Ft.	Coal Car Lbs.	Gauge of Track	Dia. Wheels	Width Over All	Length Over All	Height of Car	Wheel Base	Weight, Lbs.	Price
230	12	600	24 in	10 in	37 in.	50 in.	36 in	24 in.	450	$ 81 25
231	20	1 000	24 "	12 "	47 "	60 "	48 "	28 "	650	93 75
232	25	1,250	24 "	14 "	48 "	63 "	55 "	28 "	800	106 25
233	30	1 500	28 "	16 "	51 "	65 "	58 "	28 "	950	125 00
234	45	2 240	30 "	18 "	53 "	70 "	61 "	30 "	1,050	156 25

CONTRACTORS' TIP CARS

To meet the special requirements of the contractor's work, we build a Tip Car as here represented.

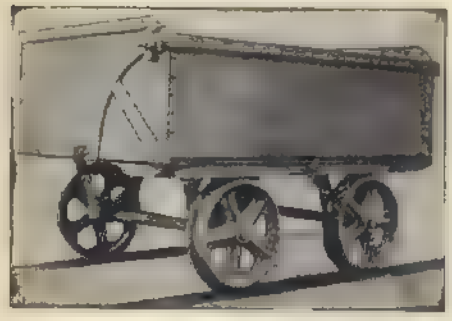
It is entirely of iron and steel. Bumpers and link couplings enable them to be coupled and propelled either by hand, horse or steam power.

Their large wheels are fitted to strong axles, which turn in anti-friction roller bearings.

TABLE OF SIZES, PRICES, ETC.

Size Number of Car	Capacity in Cubic Feet	Width in Inches	Length in Inches	Height of Car in Inches	Gauge of Track in Inches	Price
235	20	48	60	54	24	$106.25
236	27	52	65	56	28	118.75
237	36	54	68	61	30	143 75
238	45	58	74	64	36	175.00

CHARGING CARS AND WAGONS



Charging Car

Charging Wagon

Be sure and specify whether Car or Wagon is wanted

To obtain economy in firing and to avoid dust and the inconvenience of heaps of coal and ashes on the floors of boiler houses, we recommend our charging wagons and cars

They are provided with doors on either side, or end, and are of a height best suited for the operator to shovel the contents directly from the car to furnace.

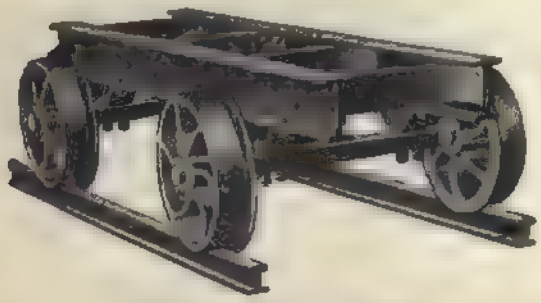
The doors are hinged to always remain one-eighth of an inch above the level of the bottom of the car, to permit the shovel to slide over the joint without obstruction

Size Number, Wagon	Size Number Car	Gross Capacity Lbs.	Capacity, Cubic Feet	Width over All Inches	Height, Inches	Length, Inches	Diameter of Wheels Inches	Wheel Base Inches	Gauge of Track Inches	Price
327A	327	500	10	30	27	58	12	24	20	$ 62 50
328A	328	700	14	32	29	64	14	26	22	75 00
329A	329	1,000	20	35	35	68	16	32	24	93 75
330A	330	1,250	25	36	36	69	16	32	24	[illegible]
331A	331	1 500	30	42	39	75	18	36	24	[illegible]
332A	332	2,000	40	44	40	92	18	40	24	137 50

No. 33 STEEL BILLET CAR

Capacity 2 Tons

For Iron or Steel Billets, Etc.



Gauge of Track, 30 Inches

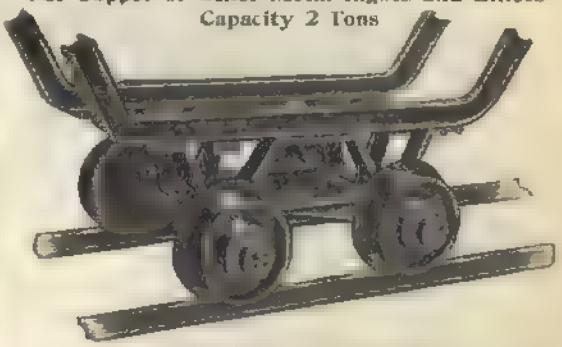
Designed especially for handling light billets in iron and steel mills. Frame of 6-inch steel I beams, length, 7 feet width, 20 inches four double cross trusses of steel, 2½x½ inches, riveted together, V shaped at ends, and double riveted to side sills as shown in cut; steel axles 2 inches square, wheels 16 inches diameter.

Weight 740 pounds. . . . . Price, $70 00

No. 49 INGOT CARS

For Copper or Other Metal Ingots and Billets

Capacity 2 Tons



With Roller Bearings

No 49. Gauge of track 18 inches roller bearings of cold drawn steel, length between rails at top 47 inches, width outside rails at top 11½ inches, height from rail to top of Track 27½ inches, rack 20 pound T rails, cross and side axle brackets 2½x½ inch steel steel axles 2 inches square wheels solid web chilled face, diameter 9 inches, face 1¼ inches, cold drawn steel rollers 11 16x4 inches, 12 in each bearing

Weight 475 pounds . . . . . Price $60 00

SIDE-DUMPING CARS FOR OVERHEAD TRAMRAIL

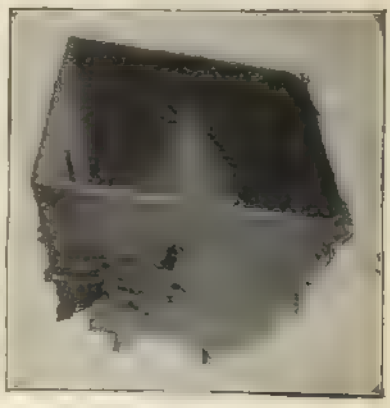
Doors or Sides (Open)

This car is used on overhead tracks for handling coal and other material.

It has a door on each side, which is opened and closed by hand, with a lever as shown, or if desired can be arranged to operate automatically.

The bottom is inclined both ways, which permits the load to be dumped on both sides of the track.

When it is desired to have the load dumped on one side only, it is fitted with a movable center piece, which is arranged in such a manner that it can instantly be shifted from side to side, or removed altogether when not required.

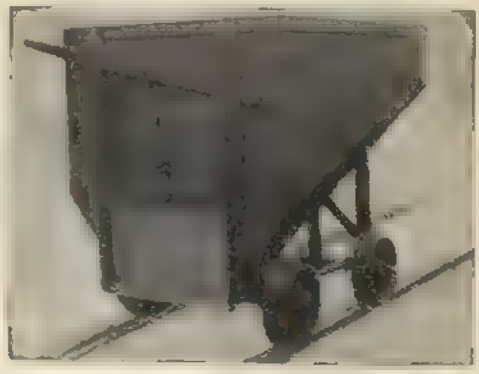


Showing Inside View

Size Number of Car	Capacity in Tons	Width in Inches	Height from Floor to Rail in Inches	Length over All in Inches	Diameter of Wheels in Inches	Wheel Base in Inches	Gauge of Track in Inches	Price
263	1	54	50	86	18	30	28	$188.00
264	1½	60	54	86	18	33	30	219.00
265	2	72	56	96	18	36	36	282.00

SIDE AND END DUMPING CARS WITH SLIDING DOORS

Side Dumping Car, Empties Contents Beyond the Track



End Dumping Car, Empties Contents Between the Rails

Size Number, Side Dump	Size Number End Dump	Coal Capacity in Pounds	Coal Capacity in Cubic Ft.	Price
258	270	1,120	22	$112.50
259	271	1,680	33	131.25
260	272	2,240	45	156.25
261	273	3,360	67	187.50
262	274	4,480	89	250.00

E. C. SIMMONS' KEEN KUTTER. TRADE MARK REGISTERED

COAL MINERS' TOOLS.

AXES.

RED COAT*, Dayton Coal Axe

Soft Steel Body, Hardened Poll; Crucible Forged Steel and Tempered Raised Bit, Body Painted Red; Polished Bit.

No. 1200ZZ RED COAT*, with No. SCA Medium Quality 28 Inch Oval Straight Hickory Handle.

Weights in a Box, Assorted, lbs.	3 to 4	3½ to 4½
Shipping Weight, per doz., about, lbs.	60	65
Per dozen	$10.00	10.25

No. 1200YY RED COAT*, with No. SCA Select 28 Inch Oval Straight Hickory Handle.

Weights in a Box, Assorted, lbs.	3 to 4	3½ to 4½
Shipping Weight, per doz., about, lbs.	60	65
Per dozen	$15.00	15.25

One Dozen in a Crate.

WEDGES.

KEEN KUTTER BLACK JACK*.

Solid Forged Highest Grade Crucible Steel, Oil Tempered and Oil Finished.

No. D—KEEN KUTTER BLACK JACK*.—REGULAR PATTERN

Weight each, lbs.	1½	2	2½	3
Length over all, inches	7⅞	8½	8¾	9
Per pound	$0.20	0.20	0.20	0.20

No. M—KEEN KUTTER BLACK JACK*.—MISSOURI PATTERN.

Weight each, lbs.	1½	1¾	2
Length over all, inches	8½	9	10
Per pound	$0.20	0.20	0.20

BEALL BROS.'

Solid Forged Steel, Oil Finished and Tempered.

No. BR—BEALL BROS.' REGULAR PATTERN.

Weight each, lbs.	1½	2	2½	3
Length over all, inches	7¾	8¾	9½	11
Per pound	$0.20	0.20	0.20	0.20

No. BM—BEALL BROS.' MISSOURI PATTERN.

Weight each, lbs.	1½	1¾	2
Length over all, inches	8	9	10
Per pound	$0.20	0.20	0.20

STANDARD.

Solid Forged Steel, Oil Finished, Hardened Head and Point.

No. C—STANDARD—REGULAR PATTERN.

Weight each, lbs.	1½	2	2½	3
Length over all, inches	8¼	8½	9	10
Per pound	$0.15	0.15	0.15	0.15

Packed in Half Barrels and Boxes of Assorted Sizes, from 400 to 500 lbs.

SLEDGES.

No. F—KEEN KUTTER BLACK JACK*.

Extra Quality, Solid Forged Steel, Oil Tempered and Oil Finished; Polished Face.

Weight each, lbs.	4	4½	5	6	7	8
Length over all, inches	8	9	9½	10½	11	11¼
Per pound	$0.25	0.25	0.25	0.25	0.25	0.25

No. H—BEALL BROS.

Solid Forged Steel, Oil Finished and Tempered, Polished Face.

Weight each, lbs.	4	5	6	7	8
Length over all, inches	8½	8½	9½	9¾	11½
Per pound	$0.25	0.25	0.25	0.25	0.25

No. G—STANDARD.

Solid Forged Steel, Oil Finished, with Hardened and Polished Face.

Weight each, lbs.	4	4½	5	6	7	8
Length over all, inches	7¼	7½	8¾	9	9¼	9½
Per pound	$0.15	0.15	0.20	0.20	0.20	0.20

Packed Loose.

TRADE MARKS
E. C. SIMMONS' *KEEN KUTTER*
CHIPAWAY.
REGISTERED.

COAL MINERS' PICKS.

High Grade Tools.

*KEEN KUTTER**, ALTON PATTERN.

Soft Steel Body, with Extra Full Weight Highest Grade Crucible Forged Steel Points, Oil Tempered, Japanned Finish; are Guaranteed to be the Very Highest Grade that can be produced.

UNDERMINING.

No. KUS—*KEEN KUTTER—SHORT EAR.**

Weight each, lbs. ..	1½	1¾	2	2¼	2½
Length over all, in..	15	15½	16	17	17½
Per dozen	$10.50	10.50	10.50	10.50	10.50

No. KUL—*KEEN KUTTER -LONG EAR.**

Weight each, lbs.	1½	1¾	2
Length over all, inches.....	15½	16	16½
Per dozen	$11.50	11.50	11.50
Weight each, lbs.	2¼	2½	2¾
Length over all, inches.....	17	17½	17¾
Per dozen	$11.50	11.50	11.50

CUTTING.

No. KCS—*KEEN KUTTER—SHORT EAR.**

Weight each, lbs.	2	2¼	2½	2¾
Length over all, inches....	14	15	15	15½
Per dozen	$10.50	10.50	10.50	10.50
Weight each, lbs.	3	3¼	3½	
Length over all, inches.....	15½	16	16½	
Per dozen	$10.50	10.50	10.50	

No. KCL—*KEEN KUTTER—LONG EAR.**

Weight each, lbs.	2½	2¾	3	3¼
Length over all, inches....	14½	15	15¾	16¼
Per dozen	$11.00	11.00	11.00	11.00

CHIPAWAY* ALTON PATTERN.

Soft Steel Body; Full Weight Special Crucible Forged Steel Points, Oil Tempered Oil Finish.

UNDERMINING.

No. CUS—CHIPAWAY*—SHORT EAR.

Weight each, lbs. ..	1½	1¾	2	2¼	2½
Length over all, in..	15½	15½	16¾	17	17¾
Per dozen	$9.50	9.50	9.50	9.50	9.50

No. CUL—CHIPAWAY* LONG EAR.

Weight each, lbs.	1½	1¾	2
Length over all, inches.....	15½	15¾	17
Per dozen	$10.00	10.00	10.00
Weight each, lbs.	2¼	2½	2¾
Length over all, inches.....	17	18	18
Per dozen	$10.00	10.00	10.00

CUTTING.

No. CCS—CHIPAWAY*—SHORT EAR.

Weight each, lbs.....	2	2¼	2½	2¾
Length over all, inches.....	13½	14¾	15	15½
Per dozen	$9.50	9.50	9.50	9.50
Weight each, lbs.	3	3¼	3½	
Length over all, inches.....	15¾	16	16	
Per dozen	$9.50	9.50	9.50	

No. CCL—CHIPAWAY*—LONG EAR.

Weight each, lbs.	2½	2¾	3	3¼
Length over all, inches	15	15	15¾	16
Per dozen	$10.00	10.00	10.00	10.00

BEALL BROS.'—ALTON PATTERN.

Soft Steel Body, with Crucible Forged Steel Points, Oil Tempered, Japanned Finish.

UNDERMINING.

No. BUS—BEALL BROS.'—SHORT EAR.

Weight each, lbs. ..	1½	1¾	2	2¼	2½
Length over all, in..	14¾	15	16½	17	17¾
Per dozen	$11.50	11.50	11.50	11.50	11.50

No. BUL—BEALL BROS.'—LONG EAR.

Weight each, lbs. ..	1½	1¾	2	2¼	2½
Length over all, in..	15½	15½	16½	17	18
Per dozen	$12.00	12.00	12.00	12.00	12.00

CUTTING.

No. BCS—BEALL BROS.' SHORT EAR.

Weight each, lbs.....	2½	2¾	3	3¼
Length over all, inches ..	15	15½	16	16¾
Per dozen	$11.50	11.50	11.50	11.50

No. BCL—BEALL BROS.'—LONG EAR.

Weight each, lbs.....	2½	2¾	3	3¼
Length over all, inches. ..	15	15	16	16½
Per dozen	$12.00	12.00	12.00	12.00

Packed Loose.

TRADE MARKS:
E. C. SIMMONS' *KEEN KUTTER*.
CHIPAWAY
REGIS. FED.

PICKS.

*KEEN KUTTER**.

Soft Steel Body, Adze Eye, with Extra Full Weight Highest Grade Crucible Steel Points, Oil Tempered.

RAILROAD

*KEEN KUTTER**; Axe Finish; Painted Blue, Polished Bit and Point.

Nos.	KR45	KR56	KR67	KR78
Weights Assorted, lbs.	4 to 5	5 to 6	6 to 7	7 to 8
Length over all, inches	23	24	25	26
Weight per doz. about, lbs.	54	66	78	90
Per dozen	$11.50	12.50	13.50	14.50

DRIFTING.

*KEEN KUTTER**; Axe Finish; Painted Blue, Polished Points

Nos.	K2	K3	K4
Weight each, lbs.	4	4½	5
Length over all, inches.	22	23	24
Weight per dozen about, lbs	48	54	60
Per dozen	$15.00	16.00	17.00

*KEEN KUTTER**; Oil Finish

Nos.	K02	K03	K04
Weight each, lbs.	4	4½	5
Length over all, inches	22	23	24
Weight per dozen about, lbs.	48	54	60
Per dozen	$14.00	15.00	16.00

Soft Steel Body, Adze Eye, Special Steel Polished Bit and Point, Hardened

RAILROAD

STANDARD; Axe Finish, Japanned.

Nos.	SR45	SR56	SR67	SR78
Weights Assorted, lbs.	4 to 5	5 to 6	6 to 7	7 to 8
Length over all, inches	23	24	25	26
Weight per doz about, lbs	54	66	78	90
Per dozen	$11.50	12.50	13.50	14.50

Solid Forged Crucible Steel; Adze Eye; Hardened Points; Oil Finished.

DRIFTING.

VERONA; Oil Finish

Nos.	V2	V3	V4
Weight each, lbs.	4	4½	5
Length over all, inches	22	23	24
Weight per dozen about, lbs.	48	54	60
Per dozen	$14.00	15.00	16.00

CHIPAWAY*.

Soft Steel Body, Adze Eye, with Full Weight Special Crucible Steel Points, Oil Tempered.

CHIPAWAY*; RAILROAD; Axe Finish; Painted Red, Polished Bit and Point.

Nos.	CR45	CR56	CR67	CR78
Weights Assorted, lbs.	4 to 5	5 to 6	6 to 7	7 to 8
Length over all, inches	23	24	25	26
Weight per dozen about, lbs	54	66	78	90
Per dozen	$11.50	12.50	13.50	14.50

CHIPAWAY*; DRIFTING, Oil Finish

Nos.	C2	C3	C4
Weight each, lbs.	4	4½	5
Length over all, inches.	22	23	24
Weight per dozen about, lbs.	48	54	60
Per dozen	$14.00	15.00	16.00

CHIPAWAY*; ORE, Axe Finish; Painted Red. Polished Bit and Point

Nos.	C067	C078
Weights Assorted, lbs.	6 to 7	7 to 8
Length over all, inches	19	21
Weight per dozen about, lbs.	78	90
Per dozen	$13.50	14.50

CHIPAWAY*; QUARRY OR STONE; Adze Eye; Axe Finish; Painted Red, Polished Points

No.	CY
Weights Assorted, lbs	6 to 7
Length over all, inches	24
Weight per dozen about, lbs.	78
Per dozen	$13.50

CHIPAWAY*; QUARRY OR STONE; Plain Eye; Axe Finish; Painted Red, Polished Points.

No.	CS
Weights Assorted, lbs.	6 to 7
Length over all, inches	14
Weight per dozen about, lbs.	78
Per dozen	$16.50

CHIPAWAY*; TAMPING; Oil Finish, with 2 to 2½ inch Tamping End

Nos.	CT67	‡CT78	‡CT89
Weights Assorted, lbs.	6 to 7	*7 to 8*	*8 to 9*
Length over all, inches	23½	*25½*	*26½*
Weight per dozen about, lbs.	78	*90*	*102*
Per dozen	$18.00	*19.00*	*20.00*

Two Dozen in a Case.

‡Goods marked thus (‡) are not carried in stock and can only be furnished by shipment direct from factory.

TRADE MARKS
E. C. SIMMONS' *KEEN KUTTER*,
CHIPAWAY
REGISTERED

PROSPECTING PICKS.

The Face and Point are Hardened, Tempered and Thoroughly Tested.

*KEEN KUTTER**

Highest Grade Crucible Steel, Adze Eye; Hardened Point and Octagon Poll, Gold Bronzed Body and Eye, Polished Point, Poll and Face; Extra Select Hickory Handle, FASTENED WITH OUR GRELLNER PATENT WEDGE.

*KEEN KUTTER**; Handled Prospecting.

Nos.	K1	K2
Weight each, without Handle, ozs.	16	24
Length of Head, inches	7½	8
Length over all, inches	13	13
Weight per dozen about, lbs.	22	24
Per dozen	$18.00	20.00

CHIPAWAY*

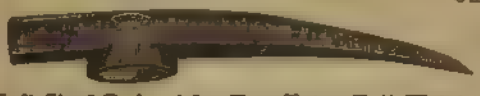
Special Crucible Steel, Adze Eye; Hardened Point and Octagon Poll; Fire Bronzed Body and Eye; Polished Point and Poll; Select Hickory Handle, FASTENED WITH OUR GRELLNER PATENT WEDGE.

CHIPAWAY*; Handled Prospecting.

Nos.	C1	C2
Weight each, without Handle, ozs.	16	[illegible]
Length of Head, inches	7½	8
Length over all, inches	13	13
Weight per dozen about, lbs.	22	24
Per dozen	$15.00	18.00

One-half Dozen in a Box.

POLL PICKS.



Soft Steel Body, Adze Eye, Extra Full Weight, Highest Grade Crucible Steel Point, Octagon Poll, Oil Tempered; Oil Finish.

*KEEN KUTTER**; Poll, Joplin Pattern; for Lead and Zinc Mining; Extra Heavy

No.	6
Weight each, lbs.	6
Length over all, inches	17
Weight per dozen about, lbs.	66
Per dozen	$20.00

Packed Loose.

Soft Steel Body, Adze Eye, Full Weight, Special Crucible Steel Point, Octagon Poll, Oil Tempered; Oil Finish.

CHIPAWAY*; Poll; Regular Light Pattern.

Nos.	1	2	3
Weight each, lbs	3½	4	4½
Length over all, inches	13½	14	15
Weight per dozen about, lbs	48	54	60
Per dozen	$15.00	16.00	17.00

Two Dozen in a Case.

MILL PICKS.

STANDARD MILL.

Solid Forged Steel, Hardened Polished Bits; Axe Finish, Body Painted Red.

Weight each, lbs	2	2¼	2½
Width of Bit, inches	1¼	1¼	1¼
Length over all, inches	9¼	10	10¾
Weight per dozen about, lbs.	24	27	30
Per dozen	$22.00	23.00	24.00

DRIFTING PICK EYES, OR CENTERS.

Soft Steel, Oil Finish, Adze Eye; Size of Eye 3x1¼ inches; Ready for Welding on Steel Points.

*KEEN KUTTER**; Highest Grade Steel.

Nos.	KE2	KE3	KE4
Weight each, lbs.	4	4½	5
Length over all, inches	10	10	13
Weight per dozen about, lbs.	48	50	60
Per dozen	$8.50	9.00	9.50

CHIPAWAY*; Special Steel.

Nos.	CE2	CE3	CE4
Weight each, lbs.	4	4½	5
Length over all, inches	10	10	13
Weight per dozen about, lbs.	48	48	60
Per dozen	$8.00	8.50	9.00

The above Eyes Match in Size and Grade the Eyes used in making Our *KEEN KUTTER** and CHIPAWAY* Drifting Picks.

Packed Loose

WATCHES.

KNICKERBOCKER.

No. 90.

No. 236.

No. 981.

No. 181

		Each
No. 90.	**Royal, Solid Copper,** highly polished case, 16 size, open face, genuine American movement, with jeweled escapement, porcelain dial, stem wind and set	$5.00
No. 236.	**Gun Metal Finish,** 12 size, gold filled bow and crown, gold mat, and black dial, high grade American jeweled movement, an excellent time-piece, fully guaranteed	6.75
No. 981.	**The Skeleton Watch, Nickel Finish,** a most unique and love, watch. The front and back plates of the movement are cut so as to give an unobstructed view of its innermost mechanism, you can see through it, an absolutely guaranteed time keeper, strong and durable enough to last a life time	6 75
No. 181.	**The Skeleton Watch, Gun Metal Finish,** otherwise same as No. 981	7.50

No. 41.

No. 83

No. 73

		Each
No. 41.	**Men's Railroad Watch, Solid Silverode Case,** a high grade American watch, with a fine jeweled movement. Case will wear permanently and is dust and moisture proof, guaranteed to keep accurate time	$5.00
No. 83.	**Men's Railroad Watch, Solid Silverode Case,** a high grade American watch, with a fine jeweled movement. Case will wear permanently and is dust and moisture proof, it has gilt locomotive back and fancy dial, guaranteed to keep accurate time	6.00
No. 73.	**Gold Filled Hunting Case,** 16 size, good quality "Knickerbocker" movement, solid porcelain dial, stem wind and set, etc., the case is warranted to wear for five years, and is furnished in handsomely engraved designs, a very serviceable and accurate time-piece for a gentleman	9 00

WATCHES.

KNICKERBOCKER.

No. 290.

No. 294.

The Bonheur.

Each

No. 290. Bassine 10-year Gold Filled Case, 14 size, antique bow, thin model, screw case, dust and moisture proof, American jeweled movement, finely finished and adjusted, tool steel pinions, enamel dial, Roman, Arabic or fancy, incomparable at price, and fully guaranteed $10.50

No. 294. Bassine 10-year Gold Filled Engine Turned Case, 14 size, antique bow, thin model, screw case, dust and moisture proof, American jeweled movement, finely finished and adjusted, tool steel pinions enamel dial, Roman, Arabic or fancy, incomparable at price, and fully guaranteed 10.50

The Bonheur, Gun Metal Finish, 16 size, this is one of the best watches made by the skillful Swiss at Chat du Fonds, made by an "Americanized" factory, and in American quantities, an exquisitely beautiful gentleman's watch of thoroughly reliable quality, its dials are reproductions of the finest and decorated art dials, in a variety of four styles, the case is of the thinnest known models, it is of genuine steel gun metal and absolutely dust proof. **Description.**—Case, 16 size, gun metal finish by heat process, blued and polished, pull out pendant set, porcelain dial, with crystal inlaid panels and gilt figures and borders, fancy gold hands **Movement.**—The movement is of very simple design and finest workmanship, made in three sections, making cleaning and repairs easy and cheap, as the barrel, train wheels, escapement or winding mechanism can be removed without disturbing other parts balance can be removed with movement in case of taking off dial; has seven ruby jewels; American lever, visible type, with two ruby jeweled pallets; double roller balance, found only in watches of highest grade, balance cap jewel of extra size and quality 12.00

Energie

No. 304.

No. 375.

Each

The Energie Alarm Watch, Gun Metal Finish. Everyone is familiar with an alarm clock, but very few know of an alarm watch The Energie fills not only all the requirements of the usual sleep disturber, but can be made useful in many other ways. To forget an important appointment at any hour of the day will be impossible with the aid of the Energie One is no longer at the mercy of a hotel employe or a sleepy maid, if a train must be caught. The portability of the alarm watch is a great advantage

The Energie is constructed to keep time, and its handsome gun metal case makes it ornamental as well as useful The back case being hinged at the top, it can be made to stand on dresser, mantel or any convenient place To silence alarm, push pin to S. To set alarm, turn the bezel holding the glass in direction of arrow, which will move the brass hand on the dial to the time desired to alarm Always wind the watch full after having set it for the alarm.

The size is rather smaller than a 16 size watch. Running time, when alarm is active, 30 hours; with alarm silent, 54 hours $12.00

No. 304. Gentleman's Gold Filled, 16 size, new thin model, open-face watch in a gold-filled, screw back and bezel case Case is warranted to wear for ten years, and has beaded edge and fancy dial Fitted with a fine seven-jeweled nickel damaskeened lever movement, has quick train, cut expansion balance and expanse pallets, fine porcelain dial, sunk second hand, stem wind and set A splendid time keeper, fully warranted, and an ideal time piece for a gentleman Cases are furnished in plain polished, with beaded edge 13.50

No. 375. Gentleman's Gold Filled, 16 size, hunting-case watch, with fine seven jewel Knickerbocker movement. The case is gold filled, warranted to wear for ten years Furnished in engine turned design; an excellent time piece, fully guaranteed in every respect 15.00

WATCHES.

KNICKERBOCKER.

No. 438.

No. 458.

No. 20.

		Each
No. 438.	**Ladies, Nickel Silver Case, 6 size,** genuine American watch movement, finest of material and adjustment, an excellent time piece, silvered dial, nickel silver case will never change color, antique bow, fully guaranteed; furnished in satin lined boxes	$3.25
No. 458.	**Ladies, Nickel Silver Case, 6 size,** genuine American watch movement, finest of material and adjustment, an excellent time piece, enamel dial, nickel silver case will never change color, antique bow, fully guaranteed; furnished in satin lined boxes	3.50
No. 20.	**Ladies, Gun Metal Finish, 6 size,** open face watch, with fine American jeweled movement, porcelain dial, stem wind and set, fitted in a high grade satin finish gun metal case, gold filled bow, warranted for five years	5.50

No. 538.

No. 9103-13

No. 136.

		Each
No. 538.	**Ladies, Gold Filled Case, 6 size,** open face, with fine jeweled movement, porcelain dial, stem wind and set. Fitted in gold filled case and artistic design, guaranteed to wear for five years; accurate time keeper, fully warranted	$ 9.00
No. 9103-13.	**Ladies, Gold Filled Case, 0 size,** hunting-case. The movement is the well known "Knickerbocker" which is guaranteed of quality. The case is gold filled, warranted to wear five years; furnished in artistic designs, the watch and case fully guaranteed in every respect	13.00
No. 136.	**Ladies, Gold Filled Case, 0 size,** chatelaine watch, with high grade American jeweled movement. The case is gold filled, plain polished, warranted to wear for twenty years; stem wind and pendant set, porcelain dial, fully guaranteed in every respect	13.50

No 102

		Each
No. 102.	**Ladies' Enamel Watch,** a high class American watch in a gold filled enameled case; the gold on this watch is guaranteed to wear for twenty years, enamels furnished in beautiful colors and artistic designs; guaranteed to keep perfect time, each watch in Morocco case with fine fleur-de-lis chatelaine pin in gold and enamel to match watch	$20.00
No. 6081.	**Ladies' Belt Watch.** The latest thing in ladies' chatelaine, high-grade American "Knickerbocker", jeweled movement, fitted in a solid silver case, oxidized in sterling silver, with French gray finish; chain and clasp are of the same material as the watch, case and movement fully warranted; each watch furnished in satin lined case	9.00

No. 6081.

WATCHES.

INGERSOLL.

New Model Triumph.

Eclipse.

	Each
New Model Triumph, Gun Metal Finish, plain case, fancy center band, brilliant black dial with silver figures and hands or satin gold finished metal dial	$1.75
New Model Triumph, White Metal Finish	1.75
Eclipse, German Silver, engine turned, stem wind and set	1.50
Eclipse, Gun Metal Finish	1.50

Yankee.

Midget.

Puritan.

Yankee, Nickel Finish, stem wind and set	$1.00
Yankee, Gun Metal Finish	1.00
Midget, Nickel Finish, regular 6 size, stem wind and set	2.00
Puritan, Gold Plated Finish, fancy engraved case, stem wind and set	1.75

KNICKERBOCKER.

No. 67.

No. 230.

No. 49.

		Each
No. 67.	**Nickel Finish,** 16 size, open face, American movement, jeweled escapement, silvered metal dial, stem wind and set, tool steel pinions, furnished in engine turned or engraved designs	$3.00
No. 230.	**Gun Metal Finish,** 12 size, open face, fitted with high grade jeweled "Knickerbocker" movement, white porcelain dial and gold bow, guaranteed to keep accurate time	4.50
No. 49.	**Solid Nickel,** jeweled escapement, fine porcelain dial, stem wind and set, furnished with plain polished case, engine turned or fancy engraved	3.25

CHAMPION LUMBERING TOOLS.

CANT HOOKS.

Japanned Swedes Iron Clasp and Extension Toe Ring; Natural Finish Forged Crucible Steel Duck Bill Hook 1x7/16 inches; Steel Clasp Bolt. Per Dozen

No. 6—ROCK MAPLE Plain Finish Handle 4½ feet Long; 2½ inches in Diameter at Clasp; Length of Hook 14 inches; Weight per dozen about 96 lbs.....$27.00

Japanned Malleable Iron Clasp and Extension Toe Ring Natural Finish Forged Crucible Steel Duck Bill Hook 1x7/16 inches; Steel Clasp Bolt. Per Dozen

No. 534—SELECTED HICKORY Plain Finish Handle 4½ feet Long, 2¾ inches in Diameter at Clasp; Length of Hook 14 inches; Weight per dozen about 119 lbs....$28.00

Japanned Malleable Iron Clasp and Plain Toe Ring; Natural Finish Forged Crucible Steel Chisel Shaped Hook 1x7/16 inches; Steel Clasp Bolt. Per Dozen

No. 7—EXCELSIOR, ROCK MAPLE Plain Finish Handle 5 feet Long; 2½ inches in Diameter at Clasp; Length of Hook 14 inches; Weight per dozen about 95 lbs.....$18.00

Japanned Malleable Iron Clasp and Plain Toe Ring; Natural Finish Forged Crucible Steel Chisel Shaped Hook 1x7/16 inches, Steel Clasp Bolt. Per Dozen

No. 734—EXCELSIOR SELECTED HICKORY Plain Finish Handle 4½ feet Long; 2¾ inches in Diameter at Clasp; Length of Hook 14 inches; Weight per dozen about 110 lbs.....$24.00

Japanned Malleable Iron Combined Clasp and Toe Ring, Natural Finish Forged Crucible Steel Duck Bill Hook 1x7/16 inches; Steel Clasp Bolt. Per Dozen

No. 113—ROCK MAPLE Plain Finish Handle 4½ feet Long; 2½ inches in Diameter at Clasp; Clasp attached to Handle with Two Steel Bolts ⅝x 3 inches, which pass through Handle; Length of Hook 14 inches; Weight per dozen about 98 lbs $21.00

Japanned Malleable Iron Combined Clasp and Extension Toe Ring; Natural Finish Forged Crucible Steel Duck Bill Hook 1x7/16 inches; Steel Clasp Bolt. Per Dozen

No. 1134—SELECTED HICKORY, Plain Finish, Handle 5 feet Long; 2¾ inches in Diameter at Clasp; Weight per dozen about 125 lbs.....$28.00

No. 4.

Japanned Swedes Iron Clasp and Plain Toe Ring, Natural Finish Forged Crucible Steel Duck Bill Hook 1x7/16 inch; Steel Clasp Bolt. Per Dozen

No. 4—ROCK MAPLE Plain Finish Handle 4½ feet Long; 2½ inches in Diameter at Clasp; Length of Hook 14 inches; Weight per dozen about 83 lbs.....$24.00

Japanned Malleable Iron Clasp and Plain Toe Ring; Natural Finish Forged Crucible Steel Duck Bill Hook 1x7/16 inches; Steel Clasp Bolt. Per Dozen

No. 5—ROCK MAPLE Plain Finish Handle 4½ feet Long; 2½ inches in Diameter at Clasp; Length of Hook 14 inches; Weight per dozen about 92 lbs.....$21.00

Japanned Malleable Iron Clasp and Plain Toe Ring, Natural Finish Forged Crucible Steel Duck Bill Hook 1x7/16 inches; Steel Clasp Bolt. Per Dozen

No. 115—SELECTED HICKORY Plain Finish Handle 5 feet Long; 2½ inches in Diameter at Clasp; Length of Hook 13 inches; Weight per dozen about 105 lbs.....$25.00

Japanned Malleable Iron Clasp and Plain Toe Ring; Natural Finish Forged Crucible Steel Duck Bill Hook 1x7/16 inches; Steel Clasp Bolt. Per Dozen

No. 15—ROCK MAPLE Plain Finish Handle 5 feet Long; 2½ inches in Diameter at Clasp; Length of Hook 13 inches; Weight per dozen about 100 lbs. $22.50

One-half Dozen in a Crate, thoroughly protecting the Hooks and Handles.

CHAMPION LUMBERING TOOLS.

PEAVIES.

SOCKET PEAVIES.

Per Dozen

No. 1—Japanned Welded Swedes Iron Socket and Clasp; Natural Finish Forged Crucible Steel Duck Bill Hook, ⅞x7/16 inches; Diamond Pointed Forged and Polished Steel Pike; Rock Maple Handle 5½ feet Long; 2½ inches in Diameter at Clasp; Length of Hook 15 inches; Length of Pike 4½ inches.....$33.00

RAFTING PEAVIES.

Per Dozen

No. 318—Japanned Forged Steel Clasp; Forged and Polished Steel Socket and Pike in One Piece; Natural Finish Forged Steel Duck Bill Hook ½x1 inches; Rock Maple Handle 4½ feet Long; 2⅜ inches in Diameter at Clasp, Length of Hook 15 inches; Length of Pike 4½ inches $33.25

In Crates of One-half Dozen each. Weight per Crate about 60 lbs.

SOCKET PEAVIES.

Japanned Malleable Iron Socket with Lugs; Natural Finish Forged Crucible Steel Duck Bill Hook; Diamond Pointed Forged and Polished Steel Pike; Length of Hook 15 inches; Length of Pike 4½ inches.

Per Dozen

No. 2—ROCK MAPLE HANDLE 5½ feet Long; 2½ inches in Diameter at Top of Socket Hook ⅞x7/16 inches.....$27.00

No. 234—SELECTED HICKORY HANDLE 5½ feet Long; 2¾ inches in Diameter; Hook ⅞x7/16 inches..... 35.00

No. 308—SELECTED HICKORY HANDLE 5½ feet Long; 3 inches in Diameter; Hook 1x1½ inches 40.00

In Crates of One-half Dozen each; thoroughly protecting the Hooks and Handles; Weight per Crate, about 70 lbs.

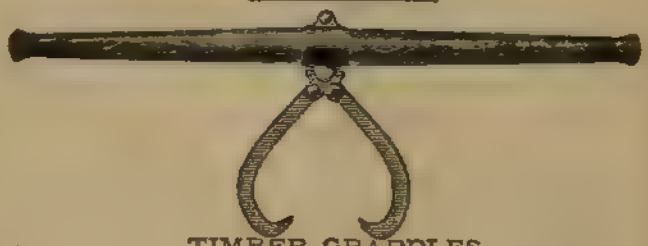
PEAVIES

SPLIT SOCKET PEAVIES.

Per Dozen

No. 8—Japanned Malleable Iron Socket with Lugs; Natural Finish Forged Crucible Steel Duck Bill Hook ⅞x7/16 inches; Steel Lug Bolt ⅝x½ inch; Diamond Pointed Forged and Polished Steel Pike; Rock Maple Handle 5½ feet Long, 2½ inches in Diameter at Top of Socket; Length of Hook 15 inches; Length of Pike 4½ inches.....$27.00

GRAPPLES.



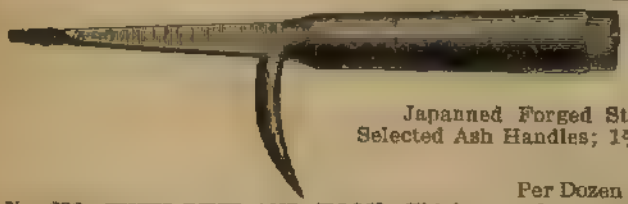
TIMBER GRAPPLES.

Per Dozen

No. 125—Japanned Malleable Iron Clasp; Natural Finish Forged Steel Hooks; ¾x½ inches, attached to Clasp with Steel Bolts; Length of Hooks 14 inches; Rock Maple Handle 4 feet Long; 2½ inches in Diameter at Clasp; Will take Logs or Timber from 3 to 15 inches in Diameter. $36.00

One-half Dozen in a Crate; Weight per Crate about 55 lbs.

PIKE POLES.



Japanned Forged Steel Pikes and Hooks; Heavy Steel Japanned Ferrules; Selected Ash Handles; 1⅝ inches in Diameter at Top Ferrules.

Per Dozen

No. 238—WITH PIKE AND HOOK; Thickness of Pike at Shank 15/16 inch; Thickness of Hook ½ inch; Handle 12 feet long; Pike Screwed into Handle; Length of Pike 8 inches; Length of Hook 3 inches; Weight per dozen about 60 lbs.....$15.50

No. 239—WITH PIKE AND HOOK; Thickness of Pike at Shank 15/16 inch; Thickness of Hook ½ inch; Handle 14 feet Long, Pike Screwed into Handle; Length of Pike 8 inches; Length of Hook 3 inches; Weight per dozen about 108 lbs..... 17.50

Per Dozen

No. 244—WITH PIKE ONLY; Thickness of Pike at Shank ¾ inch; Handle 14 feet Long; Pike Screwed into Handle; Length of Pike 8 inches; Weight per dozen about 100 lbs.....$15.50

One-half Dozen in a Bundle.

LUMBERING TOOLS.

LOADING BLOCKS.

LOADING BLOCKS.

LOADING BLOCKS.

LOADING AND SNATCH BLOCKS.

Japanned Cast Iron Sheave; Wrought Steel Frame; Wrought Iron Swivel Hook; Steel Axle Bolt.

Per Dozen

No. 1334—Sheave 5 inches in Diameter; 1⅝ inches thick; Hook 6 inches Long; Length over all 13 inches; Frame Reinforced at Top by Oval Iron Billet inside; Weight per dozen about 108 lbs. $27.00

Per Dozen

No. 19—CHAMPION; Sheave 5½ inches in Diameter, 1½ inches thick; Hook 5¾ inches Long; Length over all 14 inches; Weight per dozen about 150 lbs. $30.00

Per Dozen

No. 164—CHAMPION: Sheave 5 inches in Diameter; 1½ inches Thick; Hook 5 inches Long; Length over all 14 inches: Side of Frame Attached to Swivel Hook with Self-Locking Clasp, which can be opened when desired; Weight per dozen about 107 lbs. $33.00

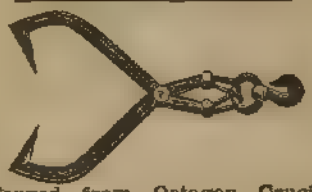
SWAMP HOOKS.

Forged from Crucible Steel; ⅞x 1½ inch Round Point; Natural Finish; Grab Hook and Ring Forged from Wrought Iron; Steel Hook 4 inches long.

Per Dozen

No. 12—CHAMPION; Grab Hook 4 inches Long; 1 inch thick at Crook; Ring 1 inch in Diameter; Length over all 20 inches; Weight per dozen about 72 lbs. $30.00

SKIDDING TONGS.



Forged from Octagon Crucible Steel; Natural Finish; Round Points; Wrought Iron Clevises, ring and Grab Hook.

CHAMPION.

Nos.	357	150
Thickness Hooks, in.	1	1⅛
Width, open, in.	24	32
Length over all, in.	32	38
Wgt. pair about, lbs.	16	23
Per dozen	$79.00	90.00

LOADING HOOKS.

Forged from Crucible Steel; ¾x1 inch Round Point; Natural Finish; Ring Forged from Wrought Iron.

Per Dozen

No. 18—CHAMPION; Length of Hook 11 inches; Ring 3 inches in Diameter; Length over all 12 inches; Weight per dozen about 28 lbs. $16.00

EXTRA PARTS FOR LUMBERING TOOLS.

PIKE ONLY.

Japanned; Forged Steel; Threaded Shank.

Per Dozen

No. 208—PIKE ONLY; Length 7½ inches; Diameter ⅝ inch; Weight per dozen about 7 lbs. .. $4.50

HOOKS ONLY.

Forged from Crucible Steel; Natural Finish, Duck Bill Hook.

Per Dozen

No. 20—CANT; Length 12 inches; Width 1 inch; Thickness ½ inch; Weight per dozen about 22 lbs. $12.00

No. 21—PEAVY; Length 11 inches; Width 1 inch; Thickness ½ inch; Weight per dozen about 18 lbs. 12.00

PIKE AND HOOK.

Per Dozen

No. 205—PIKE AND HOOK; Length 8 inches; Diameter of Pike 13/16 inch; Diameter of Hook ½ inch; Length of Hook 3 inches; Weight per dozen about 9 lbs. $6.00

TOE RINGS.

Per Dozen

No. 24—Forged from Swedes Iron, Japanned; Diameter 1¾ inches; Length 2 inches; Weight per dozen about 5 lbs. $1.75

No. 25—Malleable Iron, Japanned; Diameter 2 inches; Length 2¼ inches; Weight per dozen about 5 lbs. 1.50

Packed Loose.

PIKE POLE FERRULES.

Japanned Seamless Steel.

Per Dozen

No. 207—Length 5 inches; Diameter 1 inch; Weight per dozen about 12 lbs. $3.00

CLASP.

No. 22. No 23.

Per Dozen

No. 22—Forged from Swedes Iron, Japanned, Diameter 2½ inches; Length 2¾ inches; Diameter of Bolt Hole ½ inch. $8.00

No. 23—Malleable Iron, Japanned; Diameter 2½ inches; Length 2¾ inches: Diameter of Bolt Hole ½ inch 6.00

Weight per Dozen about 11 lbs.

LUMBERMEN'S HANDLES.

CANT HOOK AND PEAVY.

		Per Dozen
No. 2514	—4 ft. x 2½ in.; ROCK MAPLE, Plain Finish; Weight per dozen about 40 lbs	$2 75
No. 2514½	—4½ ft. x 2½ in; ROCK MAPLE, Plain Finish, Weight per dozen about 47 lbs	3 00
No. 2515	—5 ft. x 2½ in; ROCK MAPLE, Plain Finish; Weight per dozen about 48 lbs	3 25
No. 2515½	—5½ ft. x 2½ in.; ROCK MAPLE, Plain Finish; Weight per dozen about 58 lbs	3 60
No. 2524½	—4½ ft. x 2¾ in.; ROCK MAPLE; Plain Finish; Weight per dozen about 57 lbs	3.25
No. 2535½	—5½ ft. x 3 in.; ROCK MAPLE; Plain Finish; Weight per dozen about 66 lbs	4 50
No. 2574½	—4½ ft. x 2½ in; SELECT HICKORY; Plain Finish; Weight per dozen about 56 lbs	4 50
No. 2575½	—5½ ft. x 2½ in; SELECT HICKORY; Plain Finish, Weight per dozen about 55 lbs	5.50
No. 2584½	—4½ ft. x 2¾ in; SELECT HICKORY; Plain Finish, Weight per dozen about 68 lbs.	6.00
No. 2595½	—5½ ft. x 3 in.; SELECT HICKORY; Plain Finish; Weight per dozen about 73 lbs	7.00

Two Dozen in a Crate.

RAFTING DOGS.

LUMBERMEN'S.

CHAIN.

Forged from Wrought Iron, Natural Finish.

Per Pound

No. 54—Points 6x1⅛x⅜ inches, Length of Chain 11 inches; 7 links, 5/16 inch Thick; Weight per dozen about 25 lbs. $0.10

RING.

Forged from Wrought Iron, Natural Finish.

Per Pound

No. 53—Length 6 inches; ⅞ inch Square Iron, Tapered and Pointed, Ring 9/16 inch thick by 3 inches in Diameter; Weight per dozen about 20 lbs. $0.10

Packed Loose.

BOOT CALKS.

No. 000.

No 00.

No. 0.

No 1.

No 4.

Cuts Actual Size.

LUMBERMEN'S BOOT CALKS.

Standard Pattern, Forged Steel, Oil Tempered and Polished.

Per 1000

No. 000—Extra Small Ball; Weight per 1000 about 3¼ lbs. $8.00

No. 00—Small Ball; Weight per 1000 about 3½ lbs. 8.00

Per 1000

No. 0—Small Ball; Weight per 1000 about 3¾ lbs. $8.00

No. 1—Medium Ball; Weight per 1000 about 4 lbs... 8.50

Per 1000

No. 4—Large Heel; Weight per 1000 about 8 lbs...$10.00

Nos. 000, 00, 0 and 1, 1000; No. 4, 500 in a Cardboard Box.

BOOT CALK SETS.

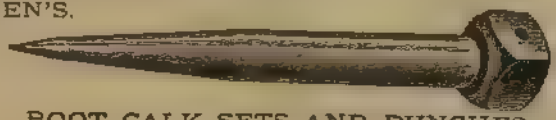
LUMBERMEN'S.

BOOT CALK SETS.

Forged from Tool Steel, Tempered and Polished.

Per Dozen

No. L—Length 4 inches; Diameter at Head ½ inch; Fits all sizes Boot Calks; Weight per dozen about 3 lbs. $4 00



BOOT CALK SETS AND PUNCHES.

Forged from Tool Steel, Tempered and Polished.

Per Dozen

No. LP—Length 4 inches; Width of Head ⅝ inch, Thickness of Shank ½ inch; Fits All Sizes Boot Calks; Weight per dozen about 2½ lbs .. $6.00

One Dozen in a Cardboard Box.

LUMBERMEN'S CAMP SUPPLIES.

TEA KETTLES.

Galvanized Iron, Pit or Flat Copper Bottom.

No. **10**, Capacity 3½ gallons, Diameter 12 inches, Each, $2 15
" **10 T**, Same, Extra Heavy Tin. " 2 00

GALVANIZED CAMP KETTLES.

All Galvanized Iron.

Pails,	2	3	5	8
Without Covers, Each,	$1 00	1 40	2 00	2 80
With " "	1 50	1 90	2 50	3 50

DINNER HORNS.

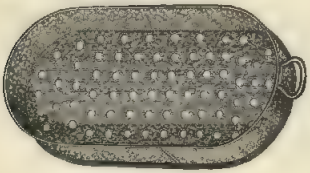
Extra Heavy Tin.

Length, Feet.	3	8
Per dozen,	$7 00	8 00

TORCHES.

Extra Heavy Tin.

1 Quart, Two Light, Swing, Per dozen, $4 50
2 " " " " " 5 00
1 Quart, One Light, Swing, " 3 75
2 " " " " " 5 25



STEAMER FOR OVAL MEAT BOILER.

Without Covers.

No. **10**, Galvanized Iron, Each, $1 50
" **10 E**, Extra Heavy Tin. " 1 40
" **20**, Galvanized Iron, Oblong, " 1 80

STEAMER FOR ROUND MEAT BOILER.

Without Covers.

No. **30**, Galvanized Iron, Round, Each, $1 20
" **40**, " " Square, " 1 50

These goods are of our own manufacture and are especially adapted to withstand the rough usage they are subjected to in camps. The material is very heavy and of the best quality. The seams are all well soldered and riveted, the rods extra heavy and the handles securely fastened.

MORLEY-MURPHY HARDWARE COMPANY, GREEN BAY, WIS.

LUMBERMEN'S CAMP SUPPLIES.

ROUND TEA AND COFFEE BOILERS.

Galvanized Iron, Copper Bottom, Brass Faucet, Adjustable Strainer Inside

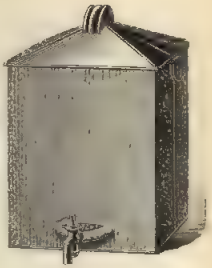
No. 1, Capacity 11 Gallons, Diameter 14 Inches, Each, $3 70

No. 1.

SQUARE TEA AND COFFEE BOILERS.

Galvanized Iron, Copper Bottom, Brass Faucet, Adjustable Strainer Inside.

No. 2, Capacity 12 Gallons, Size 12 x 12 Inches, Each, $4 00



No. 2.

TEA AND COFFEE BOILER.

With Center Strainer. Galvanized Iron, Copper Bottom, Brass Faucet, Strainer in Center to lift out, for Tea or Coffee.

No. 3, Capacity 9 Gallons, Diameter 14 Inches, Each, $4 40
" 4, Heavy Tin, Capacity 9 Gallons, Diameter 14 Inches, - - - Each, 4 25
" 5, Copper, Capacity 9 Gallons, Diameter 14 Inches, - - Each, 9 00

No. 3.

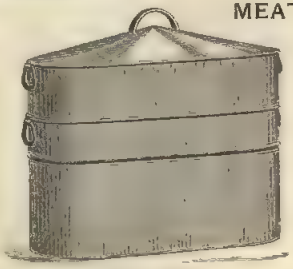
TEA AND COFFEE BOILER.

With Lip. All Galvanized Iron.

Gallons, -	3	4	6
No. 6, Each, -	$1 40	1 60	2 00

No 6.

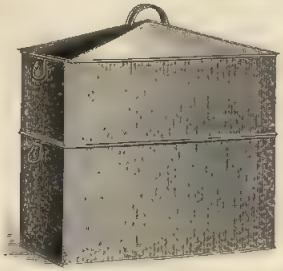
MEAT BOILERS.



OVAL, COPPER BOTTOM.

Capacity of Boiler 15 Gallons, Steamer 10 Gallons, Size of Bottom, 13 x 25 Inches

No. 10, Galvanized Iron, with Steamer, Each, $4 50
" 10, " " without " - " 3 00
" 10, Extra Heavy Tin, with " " 4 00
" 10 " " " without " - " 2 60

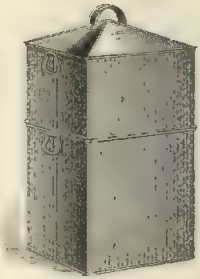


OBLONG, GALVANIZED IRON, COPPER BOTTOM.

Capacity of Boiler 24 Gallons, Steamer 12 Gallons, Size of Bottom 13 x 26 Inches.

No. 20, With Steamer, - Each, $5 40
" 20, Without " - - " 3 60

LUMBERMEN'S CAMP SUPPLIES.



MEAT BOILERS.

ROUND GALVANIZED IRON, COPPER BOTTOM.

Capacity of Boiler, 10 Gallons; Steamer, 5 Gallons; Diameter, 13 Inches.

No. **30**, With Steamer.	-	Each, $3 40
" **30**, Without "	-	" 2 20

SQUARE GALVANIZED IRON, COPPER BOTTOMS.

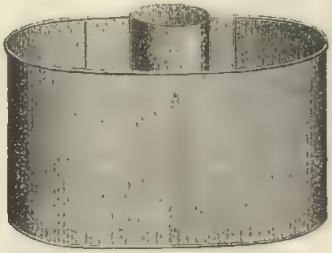
Capacity of Boiler, 12 Gallons; Steamer, 6 Gallons; Size of Bottom, 13 x 13 Inches.

No. **40**, With Steamer,	-	Each, $4 30
" **40**, Without "	- -	" 2 80

BEAN PANS.

Smooth Iron, with Tin Covers.

No. **1**, Small,	13 x 19 x 5½ Inches,	-	Each, $1 40
" **2**, Medium,	14 x 21 x 5½ "	-	" 1 60
" **3**, Large,	16 x 24 x 5½ "	-	" 1 80



RESERVOIRS.

For Camp Stoves.

Galvanized Iron, Capacity 18 gallons,		Each, $2 75
Copper, " 18 "		" 8 00
Extra for Brass Faucet,	- -	1 60

LAND-LOOKER'S COOKING PAILS.

Nests of Three.

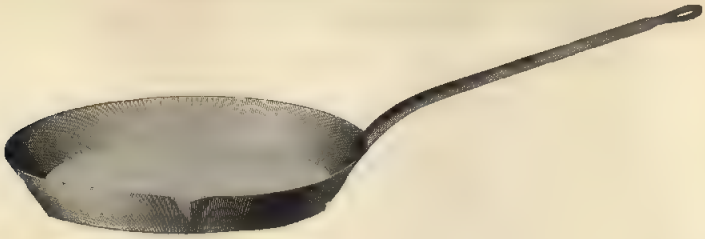
Extra Heavy Tin, one each of 2, 3 and 4 Quarts,	- -	Per nest, $1 60
Russia Iron, one each of 2, 3 and 4 Quarts, "		1 75

LAND-LOOKER'S FRY PANS.

Nos., - -	**0**	**1**	**2**	**3**
Size of Top, Inches,	8	8½	9	9½
Each, - -	$0 35	45	60	75

These goods are of our own manufacture and are especially adapted to withstand the rough usage they are subjected to in camps. The material is very heavy and of the best quality. The seams are all well soldered and riveted, the rods extra heavy, and the handles securely fastened.

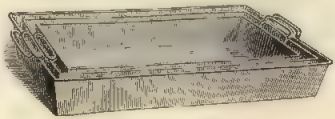
LUMBERMEN'S CAMP SUPPLIES.



FRY PANS.

Extra Large.

No. 8, Diameter on Top 14 inches, - - - - - Per dozen, $4 50

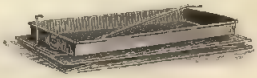


DRIP PANS.

Large.

Size, Inches.			Size, Inches		
10x17x2.	Per dozen,	$2 10	**15x21x3.**	Per dozen,	$ 3 75
12x19x2½.	"	2 50	**14x21x5½.**	"	13 00
14x15x2½.	"	2 30	**16x24x5½.**	"	15 00
18x19x3.	"	3 60			

Open.

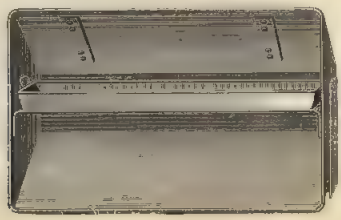


Closed

LAND-LOOKER'S BAKE OVENS.

IXX Tin, with Iron Drip Pans.

	Length.	Height.	Depth.	Size of Drip Pans.		
No. 1,	13½	11½	8	7½x11½x1½	Each,	$3 00
" 2,	18	13	11	11 x17 x1½ -	"	3 50
" 3.	21	15	13	13 x20 x2	"	4 00



PORTABLE BAKE OVENS.

IXXX Tin, with Iron Drip Pans.

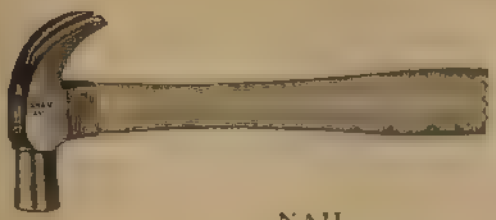
Length 48 inches, Height 24 inches, Depth 14 inches, Size of Drip Pan, 14x46 inches, - - Each, $6 00

MORLEY-MURPHY HARDWARE COMPANY, GREEN BAY, WIS.

HANDLED HAMMERS.

MAYDOLE

Solid Forged Crucible Steel Hardened Face; Tempered Claws, Fitted with High Grade Plain Varnished Hickory Handle



Polished, with Regular Curved Claws

NAIL.

Adze Eye, Plain Face.

Nos.	1	1½	2	3
Weight without Handle, ozs.	20	16	13	7
Length over all, inches	14	13	13	12
Weight per dozen about, lbs.	22	18	15	10
Per dozen	$8.75	8.00	7.50	6.75

NAIL

Adze Eye, Bell Face, Black Neck

Nos.	11	11½	12	13
Weight without Handle, ozs.	20	16	13	7
Length over all, inches	14	13	13	12
Weight per dozen about, lbs.	22	18	15	10
Per dozen	$8.75	8.00	7.50	6.75

Polished, with Straight Claws.

NAIL (OR RIPPING).

Adze Eye, Plain Face

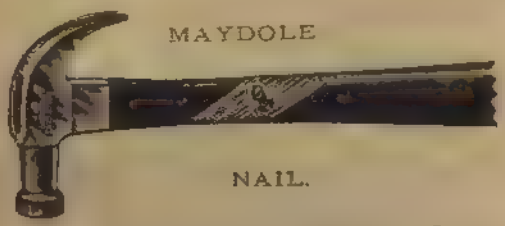
No.	701½
Weight without Handle, ozs.	16
Length over all, inches	13
Weight per dozen about, lbs.	18
Per dozen	$8.00

NAIL (OR RIPPING).

Adze Eye, Bell Face Black Neck.

No.	711½
Weight without Handle, ozs.	16
Length over all, inches	13
Weight per dozen about, lbs.	18
Per dozen	$8.00

One-half Dozen in a Cardboard Box, Twelve Dozen in a Case.



MAYDOLE

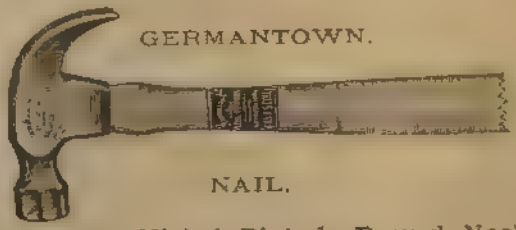
NAIL.

Adze Eye, Bell Face; Regular Curved Claws; Full Nickel Plated; Ebonized Handle

Solid Forged Crucible Steel; Hardened Face; Tempered Claws; Fitted with High Grade Hickory Handle.

No.	611½
Weight without Handle, ozs.	16
Length over all, inches	13
Weight per dozen about, lbs	16½
Per dozen	$12.75

One-half Dozen in a Cardboard Box; Twelve Dozen in a Case.



GERMANTOWN.

NAIL.

Adze Eye, Nickel Plated; Round Neck; Octagon Head

Solid Forged Crucible Steel; Hardened Face; Tempered Claws; Fitted with White Hickory Handle.

Nos.	G43	G44
Size	1½	1
Weight without Handle, ozs.	15	20
Length over all, inches	12½	13
Weight per dozen about, lbs.	17	21
Per dozen	$11.00	16.50

One-half Dozen in a Cardboard Box; Six Dozen in a Case.

HANDLED HAMMERS.

MAYDOLE

Solid Forged Crucible Steel; Hardened Face and Pein; Hickory Handle, Varnished

MACHINISTS' BALL PEIN.

Round Neck; Ball Pein, Polished, with Black Neck.

Nos.	70	70½	71	72	73	74	75	76
Weight without Handle ozs	48	36	30	24	20	16	13	10
Length over all, inches	19	19	17	17	16½	15½	15	14
Weight per dozen about lbs.	36	36	32	26	20	18	15	12
Per dozen	$20.00	17.00	15.00	13.50	12.25	11.25	10.50	10.00

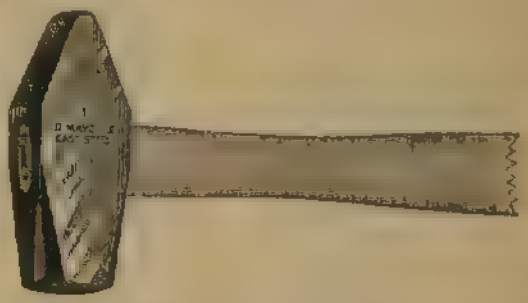
One-third Dozen in a Cardboard Box; Six Dozen in a Case.

MACHINISTS' RIVETING.

Plain Eye, Polished.

Nos.	40	41	42	43	44
Wgt without Handle, ozs.	24	18	13	7	4
Length over all inches	13	13	12½	12	12
Wgt per doz about, lbs	18	17	12	7	6
Per dozen	$8.50	7.25	6.00	5.25	5.00

One-half Dozen in a Cardboard Box, Twelve Dozen in a Case.

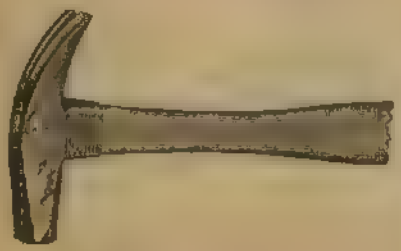


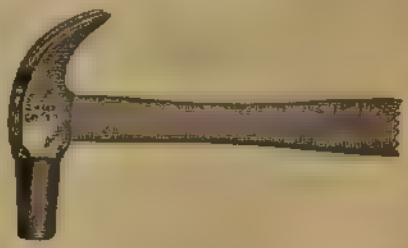
BLACKSMITHS' HAND

Plain Eye, Polished.

Nos.	61	62
Weight without Handle, ozs.	48	42
Length over all, inches	15	15
Weight per dozen about, lbs	38	34
Per dozen	$15.00	14.00

One-third Dozen in a Cardboard Box, Six Dozen in a Case.





FARRIERS'

Solid Forged Crucible Steel, Polished; Hardened Face and Tempered Claws; Hickory Handle, Varnished.

Boston Pattern, Adze Eye

No.	152
Weight without Handle ozs.	10
Length over all, inches	14
Weight per dozen about, lbs.	10
Per dozen	$8.00

Adze Eye, Round Poll

No.	253
Weight without Handle, ozs.	8
Length over all, inches	13
Weight per dozen about, lbs.	10
Per dozen	$7.00

Plain Eye, Round Poll

No.	55
Weight without Handle, ozs	7
Length over all, inches	12
Weight per dozen about, lbs.	10
Per dozen	$6.00

One-half Dozen in a Cardboard Box; Twelve Dozen in a Case

HANDLED HAMMERS.

STANDARD.

MACHINISTS' BALL PEIN.

Octagon Pattern, Polished, with Black Necks.

Solid Forged Crucible Steel; Hardened Face and Pein; White Hickory Handle.

Nos.	SM4 0	SM3 0	SM2 0	SM0	SM1	SM2	SM3	SM4	SM5
Weight without Handle, ozs	6	8	12	16	20	24	28	32	35
Length over all, inches	11½	12	13	13½	14	15	17	18	19
Weight per dozen about, lbs.	7	11	13	16	21	23	26	28	30
Per dozen	$12.00	12.00	12.00	12.50	13.50	14.50	15.50	16.50	17.50

STANDARD.
PLOW OR ENGINEERS'.

Octagon Poll, Cross Pein, Black Finish, with Polished Face.

Solid Forged Crucible Steel; Hardened Face and Pein; White Hickory Handle

Nos.	SE0	SE1	SE2	SE3
Weight without Handle, ozs	18	26	32	40
Length over all, inches	14	15	15	16
Weight per dozen about, lbs	19	24	31	34
Per dozen	$11.00	11.50	12.50	13.50

One-half or One-third Dozen in a Cardboard Box; Six Dozen in a Case.

STANDARD. BRICK.

Plain Eye; Square Face; Black Finish, with Polished Face.

Solid Forged Crucible Steel; Hardened Face; White Hickory Handle

No.	S 15
Weight without Handle, ozs	24
Length over all, inches	11
Weight per dozen about, lbs	22
Per dozen	$12.00

One-half Dozen in a Cardboard Box; Six Dozen in a Case.

SHOE HAMMERS.

No. 46

STANDARD.

Cast Iron, Japanned; Polished Face, with Hardwood Handle; Plain Eye; Large Flaring Bell Face.

	Per Dozen
No. 44—PLAIN HANDLE. Weight without Handle 11 ozs. Length over all 9 inches; Weight per dozen about 12 lbs.	$2.25
No. 45—PLAIN HANDLE. Weight without Handle 9½ ozs.; Length over all 9 inches; Weight per dozen about 8 lbs.	2.00
No. 46—FANCY TURNED HANDLE; Weight without Handle 16 ozs.; Length over all 9 inches; Weight per dozen about 14 lbs.	2.50

One-half Dozen in a Cardboard Box.

TRADE MARKS
E. C. SIMMONS' KEEN KUTTER,
BAY STATE,
REGISTERED.

TACK HAMMERS.

KEEN KUTTER*

Highest Grade Crucible Steel, Nickel Plated; Carefully Tempered Claws and Hardened Face, with Second Growth Hickory Handle.

Adze Eye; Upholsterers' Pattern; Non-Magnetic.

Per Dozen

No. K400—*KEEN KUTTER**; Length of Head 6 inches; Length over all 10¾ inches; Weight per dozen about 6½ lbs..... $10.00

Plain Eye; Horse Shoe Pattern; Magnetic.

Per Dozen

No. K500—*KEEN KUTTER**; Length of Head 4¾ inches; Length over all 10½ inches; Weight per dozen about 6 lbs.. $10 00

One-half Dozen in a Cardboard Box.

BAY STATE*.

Special Cast Iron, Plain Eye, Magnetic, Horse Shoe Pattern, Full Polished, with Select Hickory Handle.

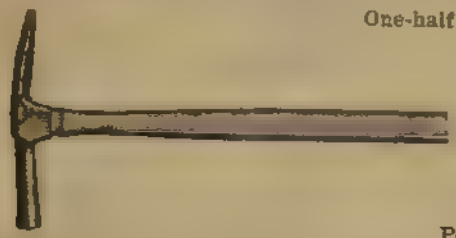
Per Dozen

No. 600—BAY STATE*; With Claw; Length of Head 4¾ inches; Length over all 10 inches; Weight per dozen about 6 lbs..... $3.50

Per Dozen

No. 650—BAY STATE*; Without Claw; Length of Head 3⅞ inches; Length of Handle 10 inches; Weight per dozen about 5½ lbs..... $3.50

One-half Dozen in a Cardboard Box.



Per Dozen

No. 300—POPULAR; Cast Iron, Adze Eye, Upholsterers' Pattern, with Claw, Polished Finish; with Hickory Handle; Length of Head 6½ inches; Length over all 10½ inches; Weight per dozen about 4½ lbs..... $5.00

Per Dozen

No. 25—STANDARD; Cast Iron; Plain Eye; Polished Finish; Hickory Handle, with Ferrule and Claw; Length of Head 3¾ inches; Length over all 11¼ inches; Weight per dozen about 3½ lbs $1.15

Per Dozen

No. 2—STANDARD; Cast Iron, Plain Eye, Magnetic, Tinned Finish; Hickory Handle, with Ferrule and Steel Claw; Length of Head 4 inches; Length over all 12 inches; Weight per dozen about 4½ lbs..... $1.80

Per Dozen

No. 50—ALL IRON; Solid Cast Iron Head, Octagon Face, Open Handle and Claw; Coppered Finish; Plain Eye; Length of Head 2¾ inches; Length over all 8 inches; Weight per dozen about 4½ lbs. $0.75

One Dozen in a Cardboard Box.

"MORSE" IMPROVED DIVING APPARATUS

We are Western Agents for A. J. Morse & Son, Sole Manufacturers of Diving Apparatus to the United States Navy and Engineer Corps

For Wrecking

Deep Sea Diving

Shallow Diving

Pearl, Shell or Sponge Diving

For Depths of 15 to 187 Feet

Diver in Armor

For Diving in Rivers, Harbors

For Water Works Examinations and Repairs

Used by Towing Companies

Dry Docks

Bridge Builders

Railroads

Mines, Etc.

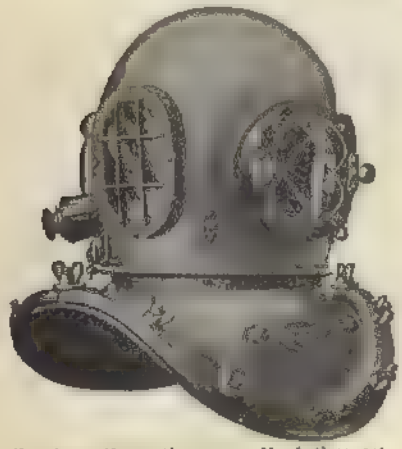
"There is Nothing too Good where Life is at Stake." "Morse" Apparatus is the Best

The armor consists of helmet to protect the head; dress, of canvas and rubber, attached to the helmet; shoes, with lead or iron soles to keep the feet down, and the body upright; lead weights to sink the diver to the bottom and prevent his rising from an over-pressure of air from the pump.

The life line is used in lowering or raising the diver, and for transmission of signals between the diver and his attendant.

The diver is first dressed in the flannels, then equipped with the dress, shoes and weights; the helmet is then attached with air hose connected, the pump started, and he is **slowly** lowered to the bottom.

"MORSE" IMPROVED SAFETY DIVING HELMETS



The above illustration shows No. 1, the most popular Helmet in use. Fitted with 3 lights as shown and also with a top light.

No. 1 Helmet—Has sectional screw, safety valve, regulating escape valve and recessed gasket seat. Receives air in the head-piece.
Price, with 3 lights (as shown) **$125.00**
Price, with 3 lights and top light..... **137.50**

The top light allows the diver to look upward without throwing the body back.

No. 2 Helmet—Is exactly the same as No. 1 except that it receives air in the breast plate instead of head-piece. Same prices as No. 1

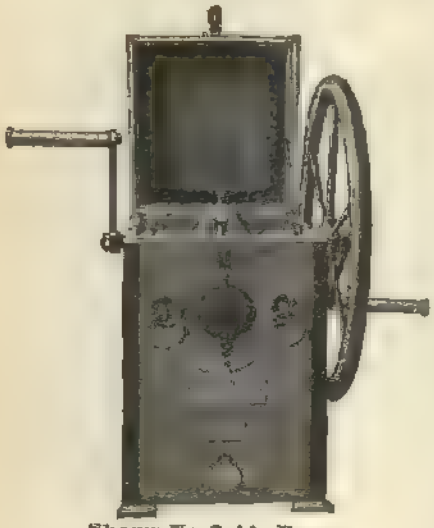
No. 3 Helmet—Has flanges and five swinging bolts, receives air in head.
Bolt pattern, 3 lights..... **$156.25**
" " 4 " **168.75**

Speaking Apparatus Consisting of a rubber tube connected with a hearing and speaking disc inside the helmet, with a mouthpiece on other end for use of a helper.
Price, with 50 feet of speaking tube..... **$75.00**

Electric Breast Lamp—Fitted with special lens and 16 candle-power incandescent lamp, also 125 feet of cable
Price..... **$43.75**

Send for complete illustrated catalog giving complete Instructions for Diving

"MORSE" AIR PUMPS



Shows No. 3 Air Pump

Each pump is run by steam power, before shipping, to develop its capacity and test its efficiency.

AIR PUMP NO. 1

This is the U. S. government official standard pump. Has capacity for two divers working simultaneously down to 100 feet, or one diver only in very deep water

Pump has two cylinders, double action, with two patent indicating gauges to denote the air pressure and depth of each diver; with water cistern, two flywheels, in ash chest, with iron rings for lashing.

Price $550.00

AIR PUMP NO. 1-A

U. S. navy standard for use on smaller ships. Will supply air for one diver to 100 feet depth.

Pump is single cylinder, double action, with patent indicating gauge to denote air pressure and depth of diver, water cistern, one flywheel, in ash chest, with iron rings for lashing.

Price $330.00

AIR PUMP NO. 2

For deep-sea diving, pearl and sponge fishing, wrecking and general work. Will supply air for one diver in 125 feet of water.

Pump has three cylinders, open top, single action, with water cistern, patent indicating gauge, to denote air pressure and depth of diver, two flywheels, ash chest, polished brass corners, with iron rings for lashing. Price..... $440.00

AIR PUMP NO. 3

For service in moderate depths, rivers, harbors, etc., for contractors, railroads, mines, etc. Will supply air for one diver in 95 feet of water. Pump has three cylinders, open top, single action, has gauge, one flywheel, two handles, ash chest, iron corners, with iron rings for lashing

Price $275.00

AIR PUMP NO. 4

For examinations, and all work of brief duration in shallow water. For waterworks, sewer department and contractors. Will supply air in 50 feet of water. Pump has single cylinder, double action, in ash chest

Price $137.50

AIR PUMP NO. 5

For shallow water and light service up to 40-foot depths. With folding brake mounted on plank, without case, two cylinders, single action.

Price $85.00

AIR PUMP NO. 6

Designed for mule back transportation. Weight complete 270 lbs. Will supply air in 70 feet of water. Single cylinder, double action, water cistern, gauge, one flywheel, two handles, in ash chest.

Price $218.75

AIR PUMP NO. 7

Specially designed for sponge and pearl fishing and all deep sea operations requiring an extra powerful pump. Pump has extra large cylinders and special air valves. Will supply air in 200 feet of water. Pump has three cylinders, open top, single acting, water cistern, indicating gauge, two flywheels, two handles, ash chest with iron corners, iron rings and removable front.

Price $550.00

AIR PUMP NO. 8

For fresh water pearlers and shell fishers working in water 15 to 20 feet deep. Single cylinder, double acting, no chest.

Price $50.00

Send for catalog giving complete description

COMPLETE DIVING OUTFITS

A complete outfit consists of one air pump, one diving helmet (for prices see previous pages) and the list of articles given below. About the same list (see below) is sent for all numbers of outfits.

1 rubber diving dress (two furnished with Outfits Nos. 1, 1A, 2, 3, 6 and 7)	$40.00
100 feet air hose, with couplings (three pieces, 150 feet, with Outfits Nos. 1, 1A, 2, 3, 6 and 7) per 50-foot length,	18.00
1 set diving weights, belt pattern	20.00
1 pair shoes, with lead or iron soles	12.00
1 pair patent diving mittens (two pairs with Outfits Nos. 1, 1A, 2, 3, 6 and 7) per pair,	5.00
1 pair rings and clamps	5.00
1 life or signal line	2.50
1 pair cuff expanders	5.00
2 feet snap tubing (6 feet with Outfits Nos. 1, 1A, 2, 3, 6 and 7) per foot,	.50
1 pair chafing pants	2.50
1 pair divers' stockings (two pairs with Outfits Nos. 1, 1A, 2, 3, 6 and 7) per pair,	1.25
1 woolen shirt and drawers (two pairs with Outfits Nos. 1, 1A, 2, 3, 6 and 7) each	2.50
1 pair woolen mittens (two pairs with Outfits Nos. 1, 1A, 2, 3, 6 and 7) per pair	1.00
1 basket for helmet, dresses, hose, etc.	15.00
3 bolts and nuts for helmet—spare—(six with Nos. 1, 1A, 2, 3, 6 and 7) each,	.50
1 set extra couplings per set,	3.00
½ yard rubber cloth for repairs (one yard with Outfits Nos. 1, 1A, 2, 3, 6 and 7) per yard,	2.00
1 can rubber cement for repairs (two pounds)	.75
1 cutting punch	.75

No. 4 outfit, usually furnished with horseshoe style weights, price $13.70.

No. 7 outfit is special, quoted upon request.

NET PRICE OF No. 3 OUTFIT

To show how the above prices are applied, we are giving below complete requirements for No. 3 outfit as an example. This outfit is very popular with contractors, railroads and mines. Complete in all respects for one diver.

1 No. 3 air pump	$250.00	2 pairs divers' stockings	$ 2.50
1 imp. diving helmet	100.00	2 woolen shirts and drawers	5.00
2 rubber diving dresses, at $40.00	80.00	2 pairs woolen mittens	2.00
150 feet of air hose, coupled	54.00	1 basket for helmet, etc.	15.00
1 set diving weights, belt pattern	20.00	6 extra bolts and nuts for helmet	3.00
1 pair diving shoes, iron soles	12.00	1 set extra couplings	3.00
2 pairs diving mittens	10.00	1 yard rubber repair cloth	2.00
1 pair rings and clamps	5.00	1 2-pound can rubber cement	.75
1 life or signal line	2.50	1 cutting punch	.75
1 pair cuff expanders	5.00		
6 feet of snap tubing, at 50c	3.00	Total	$578.00
1 pair of chafing pants	2.50		

Approximate shipping weight, 900 pounds (43 cubic feet).

No. 8 COMPLETE DIVING OUTFIT

A simple serviceable outfit for fresh-water pearling, mills, breweries, gas companies, mines, chemical factories, sewer departments or for entering tanks or any confined noxious vapors. For depths of 15 to 20 feet.

Outfit consists of:

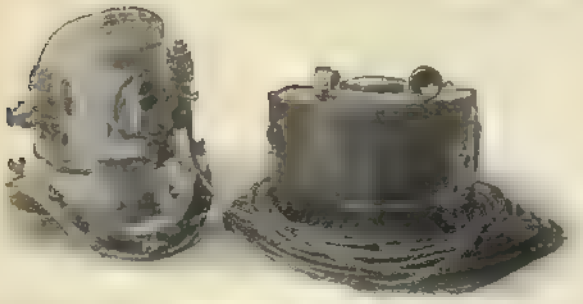
1 air pump, single cylinder, double acting, no chest.
1 helmet, single light, no breastplate.
1 dress (jacket and trousers).
3 feet snap tubing.
50 feet hose, with couplings.
1 pair iron sandals.
1 signal line.

Weight, 200 pounds.

Price, net **$175.00**

To prevent chafing of Dress we commend our Canvas Dress, to be worn outside, at $5.50, or Canvas Overalls at $2.50.

For work above water no Shoes are needed, the feet and legs of the Dress being in the form of Rubber Boots.



TELEPHONES FOR DIVERS

To make this style compact as possible, we place the battery in strong ash case, with space for receiver and transmitter when not in use.

Combines our latest improvements and is found most desirable for general service.

Complete with battery, 120 feet cable, receiver, and transmitter for attendant.

Receiver and transmitter for helmet....**$125.00**

Price does not include helmet

"MORSE" IMPROVED WATER-PROOF DIVING DRESSES

Fitted with vulcanized rubber collar and cuffs and reinforced at all parts exposed to wear. Very carefully made from the best material obtainable. Each dress has inside cape to pull up around the diver's neck.

SIZES

No. 1 For Diver 5' 6" No. 3 For Diver 5' 10"
No. 2 " " 5' 8" No. 4 " " 6' to 6' 2"

Always give height of diver in ordering

Price . . . . . **net, $44.00**

Diving Dress, with collar for square-shaped breast plate. Price. **$44.00**

Canvas Dress, Overall, made of stout duck and to be worn over the diving dress to prevent chafing of dress. Price . . . . . **net, $6.25**

DIVING WEIGHTS

Belt Pattern

A series of lead weights riveted to broad waist belt with two shoulder straps.

Price, per set . **net, $25.00**

MORSE PATENTED GRADUATING DIVING WEIGHTS

As each weight can be instantly removed, the diver can adjust the amount to any desired depth.

Lead weights in gun metal pockets, broad waist belt, and two shoulder straps.

Price, per set. **net, $30.00**

DIVING WEIGHTS

Strap Pattern

The small belts pass through the weights which can be removed as desired.

Price, per set. . **net, $30.00**

DIVING WEIGHTS

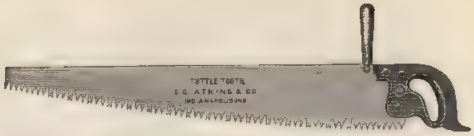
Horseshoe Pattern

The old style weights but still have the approval of some divers.

Price, per set . . . . . **net, $17.00**

ONE MAN CROSS-CUT SAWS.

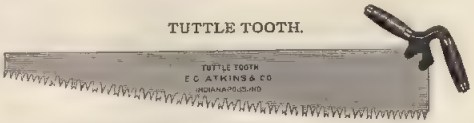
TUTTLE TOOTH.



Handle illustrated on this Saw is the Hand-Saw Handle, or One-Man Saw Handle No. 2.

Atkins' Cast Steel, with No. 2 Handle.								Sheffield Cast Steel, with No. 2 Handle.							
Feet	3	3½	4	4½	5	5½	6	Feet	3	3½	4	4½	5	5½	6
Each	$1.80	2.10	2.40	2.70	3.00	3.30	3.60	Each	$1.80	2.10	2.40	2.70	3.00	3.30	3.60

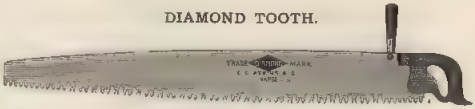
TUTTLE TOOTH.



Handle illustrated on this Saw is the Atkins One-Man Saw Handle No. 1.

Atkins' Cast Steel, with No. 1 Handle.								Sheffield Cast Steel, with No. 1 Handle.							
Feet	3	3½	4	4½	5	5½	6	Feet	3	3½	4	4½	5	5½	6
Each	$1.80	2.10	2.40	2.70	3.00	3.30	3.60	Each	$1.80	2.10	2.40	2.70	3.00	3.30	3.60

DIAMOND TOOTH.

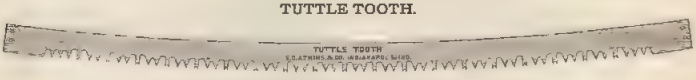


Showing No. 2 Handle.

Atkins' Cast Steel, with No. 1 or 2 Handle.								Sheffield Cast Steel, with No. 1 or 2 Handle.							
Feet	3	3½	4	4½	5	5½	6	Feet	3	3½	4	4½	5	5½	6
Each	$1.80	2.10	2.40	2.70	3.00	3.30	3.60	Each	$1.80	2.10	2.40	2.70	3.00	3.30	3.60

HOLLOW-BACK CROSS-CUT SAWS.

TUTTLE TOOTH.



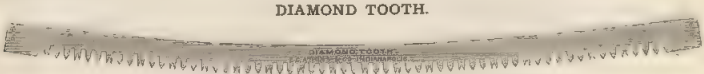
Atkins' High Grade Special Steel, 3¼ in. Wide.

Feet	4	4½	5	5½	6	6½	7	7½	8
Each, without Handles	$1.12	1.26	1.40	1.54	1.68	1.82	1.96	2.10	2.24

Sheffield Cast Steel, 3¼ in. Wide.

Feet	4	4½	5	5½	6	6½	7	7½	8
Each, without Handles	$1.12	1.26	1.40	1.54	1.68	1.82	1.96	2.10	2.24

DIAMOND TOOTH.



Atkins' High Grade Special Steel, 3¼ in. Wide.

Feet	4	4½	5	5½	6	6½	7	7½	8
Each, without Handles	$1.20	1.35	1.50	1.65	1.80	1.95	2.10	2.25	2.40

Sheffield Cast Steel, 3¼ in. Wide.

Feet	4	4½	5	5½	6	6½	7	7½	8
Each, without Handles	$1.20	1.35	1.50	1.65	1.80	1.95	2.10	2.25	2.40

PORTABLE STEEL BOILERS COMPLETE MOUNTED ON WHEELS

With Cast Front and Water Bottom Fire Boxes

Fixtures comprise hinged smoke stack, grates, pop safety valve, steam gauge, water gauge with water column, gauge cocks, whistle, blow-off, check and stop valves, injector attached, running gear as shown in cut, including wheels, tongue, neckyoke, doubletree, whiffle rees, and tool box, but do not include driver's seat, brake, or hand suction pump, which will be furnished, when so ordered, at an additional price.

All wheels are of iron, and of ample strength for the load to be carried.

Specifications

Number of Size	Horse-Power	Diam. of Boiler in Inches	Length of Fire Box in Inches	Width of Fire Box in Inches	Height of Fire Box in Inches	Number of 3½ Inch Tubes	Length of Tubes in Inches	Estimated Weight in Lbs.
0	6	26	34	21	29	17	54	3,300
1	8	28	36	22	32	18	60	3,500
3	10	30	38	24	34	22	72	3,900
4	12	32	38	26	38	26	72	4,500
5	15	32	44	26	38	26	78	4,900
6	20	34	52	28	38	30	90	5,700
7	25	36	52	30	40	34	96	6,800
8	30	36	52	30	40	34	102	7,000
9	35	40	52	34	44	40	102	7,900
10	40	40	60	34	44	42	120	8,900
10½	50	40	60	34	44	42	144	9,700
11	50	44	64	38	50	48	132	10,700
11½	60	44	64	38	50	48	144	11,200
12	60	48	64	42	52	52	144	12,200
13	70	48	64	42	52	52	168	13,000

FULL LENGTH TUBE VERTICAL TUBULAR BOILERS

Regular or Octagon Base

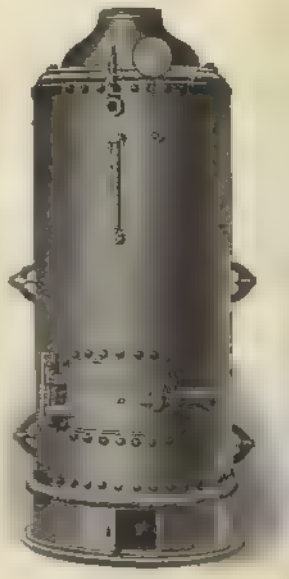
Attention is called to our Round Base as shown. It is furnished with a wrought-iron bottom, securely fastened, and has an air space of one inch between the bottom of the base and the floor. By this means the use of brick may be obviated, when using the boiler on a wooden floor, with perfect safety.

Boilers are made of open hearth flange steel plate, having a tensile strain of 60,000 pounds per square inch of section.

All sizes above 20 inches are well braced by means of stay bolts, and all boilers 30 inches and upward in diameter have their vertical seams double riveted: From No. 1 to No. 10 inclusive, the shells are made of a single sheet.

Boilers 20 to 30 inches in diameter have two, and the larger sizes three hand holes around the water leg, and the same number above the crown sheet. In boilers 20 inches in diameter the water space around the fire-box is 1½ inches wide, in the 24-inch diameter 2 inches, and in all other sizes 2½ inches wide.

The fixtures comprise: base, grate, hood, steam gauge, glass water gauge, gauge cocks, either pop or lever safety valve, blow-off valve, check and stop valve.



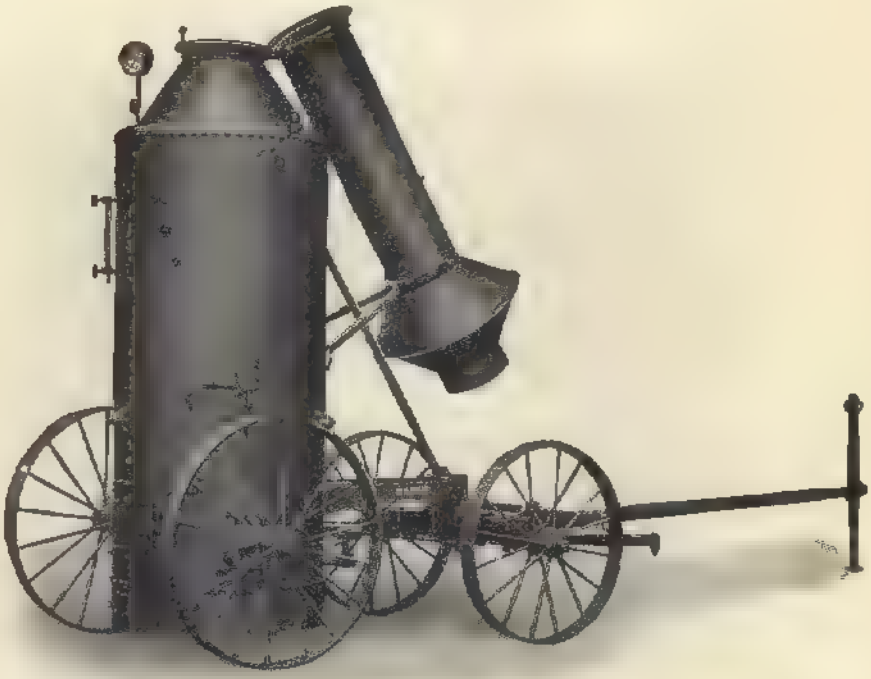
Round Base

No. of Size	Horse Power as Usually Rated	Diameter of Boiler, Inches	Height of Boiler, Feet	Diameter of Furnace, Inches	Height of Furnace, Inches	Thickness of Shell, Inches	Thickness of Heads, Inches	No. of Tubes, All 2 Inches in Diameter	Length of Tubes, Inches	Square Feet of Heating Surface	Diameter of Stack Required, Inches	Weight of Bare Boiler, Lbs	Weight of Boiler Complete With Fix Trimmings, Lbs	Price of Bare Boiler Without Base, Grates, or Hood	Price of Boiler Complete	Add Net Extra for Round Base
O	1½	20	3	16	18	[illegible]	[illegible]	16	18	18	8	350	450	$43 00	$ 60.00	
A	2	20	3½	16	18	[illegible]	[illegible]	19	24	25	8	450	550	50 00	67.00	.
B	3	20	4	16	18	[illegible]	[illegible]	19	30	30	8	[illegible]	650	56 00	73.00	.
1	4	24	4	19	23	[illegible]	[illegible]	24	25	39	8	[illegible]	1,300	85 00	108.00	$ 4 50
2	5	24	5	19	23	[illegible]	[illegible]	24	37	51	8	1,000	1,400	97.00	120 00	[illegible]
3	6	24	6	19	23	[illegible]	[illegible]	24	49	63	8	1,100	1,500	109 00	132 00	4 50
3½	6	27	5	21	26	[illegible]	[illegible]	30	34	59	10	1,100	1,400	114 00	141 00	5 00
4	7	30	5	24	26	[illegible]	[illegible]	42	34	75	10	1,200	1,800	141 00	177 00	5 50
5	9	30	6	24	26	[illegible]	[illegible]	42	46	96	10	1,400	[illegible]	161 00	195 00	5 50
6	11	30	7	24	26	[illegible]	[illegible]	42	[illegible]	107	10	1,900	2,200	[illegible]	215 00	5 50
7	12	36	6	30	26	[illegible]	[illegible]	60	46	134	14	1,700	2,000	202 00	250 00	6 00
8	14	36	7	30	26	[illegible]	[illegible]	60	58	164	14	2,100	2,500	227.00	275 00	6 00
9	16	36	8	30	26	[illegible]	[illegible]	60	70	194	14	2,500	3,100	252.00	300.00	6 00
10	20	42	7	36	30	[illegible]	[illegible]	84	54	219	16	2,800	3,700	247 00	365.00	13 00
11	23	42	8	36	30	[illegible]	[illegible]	84	66	261	16	3,200	4,100	337 00	400 00	13 00
12	27	42	9	36	30	[illegible]	[illegible]	84	78	303	16	3,600	500	377 00	440 00	13 00
13	30	48	8	42	30	[illegible]	[illegible]	120	66	363	20	4,000	5,400	456 00	525 00	18 00
14	35	48	9	42	30	[illegible]	[illegible]	120	78	423	20	4,500	5,900	506 00	585 00	18 00
15	40	48	10	42	30	[illegible]	[illegible]	120	90	483	20	5,000	6,400	558 00	635 00	18 00
16	50	48	10	42	30	[illegible]	[illegible]	150	90	600	20	5,600	7,000	631 00	710 00	18 00
16½	60	54	10	48	30	[illegible]	[illegible]	180	90	713	24	6,500	8,000	772 00	880 00	.
17	75	54	12	48	30	[illegible]	[illegible]	180	114	893	24	[illegible]	9,900	912 00	1,025 00	

Prices do not include Stack or Injector

VERTICAL TUBULAR BOILERS ON WHEELS

Complete Ready for Use



Fixtures comprise grates, steam gauge, water gauge, gauge cocks, pop safety valve blow-off, check and stop valves, injector attached, sheet steel hood with hinged stack and spark arrester and sheet steel ash pan, with ash door also running gear, including wheels tongue, neckyoke doubletree and whiffletrees.

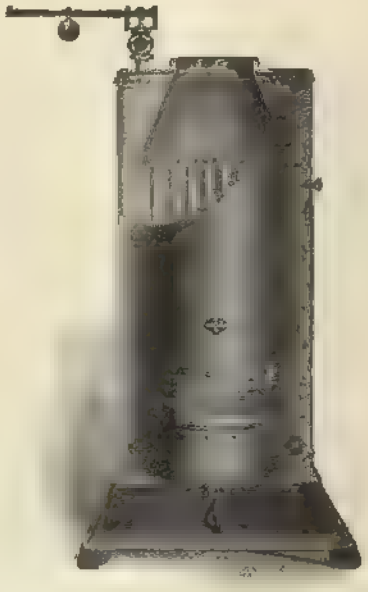
All wheels are of iron, and of ample strength for the load to be carried.

Specifications

Horse-Power	Diam. of Boiler in Inches	Height of Boiler in Feet	Diam. of Fire Box in Inches	Height of Fire Box in Inches	Length of Tubes in Inches	Number of Tubes (1 2 inch Diameter)	Square Feet of Heating Surface	Estimated Wt. with Fixtures in Lbs.
4	24	4	20	24	24	28	43	2,700
5	24	5	20	24	36	28	58	2 800
6	24	6	20	24	48	28	73	2 900
8	30	5	25	27	33	48	89	3 450
10	30	6	25	27	45	48	114	3 600
12	30	7	25	27	57	48	131	3 750
15	36	6	31	27	45	72	167	4 100
18	36	7	31	27	57	72	205	4,350
20	36	8	31	27	69	72	242	4,600
25	42	7½	37	30	60	96	287	5,700
30	42	8½	37	30	72	96	338	6,050
35	42	9½	37	30	84	96	388	6,400
40	48	9	43	30	78	130	486	7,500
45	48	9½	43	30	84	130	520	7 800
50	48	10	43	30	90	130	544	8,100

VERTICAL TUBULAR BOILERS

Submerged Tubes



SPECIFICATIONS VERTICAL TUBULAR BOILERS

Submerged Tubes

No. Boiler	500	501	502	503	504	505	506	507	508	509	510
Horse Power	5	6	8	10	12	15	21	25	35	40	45
Diameter Boiler, inches	25	25	30	30	36	36	42	42	48	48	48
Height Boiler, inches	72	78	72	78	78	84	96	96	108	114	120
Height Fire Box, inches	24	24	27	27	27	27	30	30	30	30	30
Number Two-inch Tubes	99	99	48	48	68	68	92	92	128	128	128
Length Tubes, inches	30	36	27	33	33	39	42	48	51	57	63
Thickness Shell, inches	¼	¼	¼	¼	¼	¼	¼	¼	⅜	⅜	⅜
Thickness Heads, inches	⅜	⅜	⅜	⅜	⅜	⅜	⅜	⅜	⅜	⅜	⅜
Safety Valve, inches	1	1¼	1¼	1½	1½	1½	1½	2	2½	3	3
Check and Stop Valves, inches	¾	¾	¾	¾	¾	¾	¾	¾	¾	1	1
Blow-off Cock, inches	¾	¾	1	1	1	1¼	1¼	1¼	1¼	1¼	1¼
Diameter Stack, inches	12	12	14	14	16	16	18	18	22	22	22
Thickness Stack, number	16	16	16	16	16	16	16	16	16	16	16

Shipping Weights

Boiler Only	1100	1200	1400	1500	2000	2100	2800	3000	4500	4750	5000
Fixtures and Trimmings	200	200	400	400	450	450	500	500	650	650	650
Complete Outfit	1300	1400	1800	1900	2450	2550	3300	3500	5150	5400	5650

All boilers 36 inches diameter and smaller have cast-iron base without bottom plates.

All boilers 42 inches diameter and larger have shell extended to form ash pit and are furnished with cast-iron bottom plates.

When "Complete Outfit" is ordered we ship boiler with doors, base or bottom plate, grates and trimmings, consisting of water gauge, three gauge cocks, steam gauge, safety valve, check and stop valves and blow-off cock.

Smoke stacks are extra.

Injector or inspirator with pipe fittings and valves connected to boiler furnished at an extra price.

TRADE MARK
E. C. SIMMONS *KEEN KUTTER*,
REGISTERED.

BARS.

PINCH BARS.

CARPENTERS' PINCH (OR WRECKING) BARS

Forged from Best Open Hearth Steel, Oil Finished; with Wedge or Chisel Point at Upper End; Length over all 30 inches; Upper End ⅝ inch Round; Lower End ⅞ inch Square.

	Each
No. K30—*KEEN KUTTER*®, WITH SPLIT PINCH POINT OR CLAW AT LOWER END; Extra Finished and Tempered; Weight each about 5¼ lbs.	$3.00
No. P—STANDARD, WITH PLAIN PINCH POINT AT LOWER END; Weight each about 5¼ lbs.	$2.00

CROW BARS.

Forged Steel, Oil Finished; Round body, with Octagon and Squared Lower End; Hardened Point.

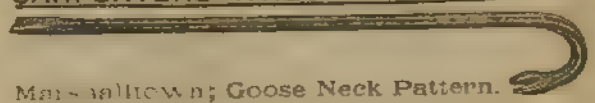
No. WP—Wedge Point.

Weight each, lbs.	10	12	14	16
Length, feet	4	4⅓	4½	4⅔
Per lb.	$0.12	.12	.12	.12
Weight each, lbs.	18	20	22	25
Length, feet	5	5⅙	5½	5¾
Per lb.	$0.12	.12	.12	.12

No. PP—Pinch Point.

Weight each, lbs.	10	12	14	16	18
Length, feet	4	4⅓	4½	4⅔	[illegible]
Per lb.	$0.12	.12	.12	.12	.12
Weight each, lbs.		20	22	25	30
Length, feet		[illegible]	5½	5¾	6
Per lb.		$0.12	.12	.12	.12

CARPENTERS' WRECKING BARS.



Marshalltown; Goose Neck Pattern.

Forged from Octagon Tool Steel, ¾ inch Diameter, Oil Finished; Hardened at Both Ends; Wedge or Chisel Point at Upper End; Goose-Neck Bend and Claw at Lower End.

	Each
No. M630 30 inches Long. Weight each about 4¼ lbs.	$2.00
No. M624 24 inches Long, Weight each about 3½ lbs.	1.80

RAILROAD TRACK TOOLS.

LINING BARS.

TAMPING BARS.

Forged Steel, Oiled Finish, Round Body with Octagon and Squared Lower End; Tempered at Working End.

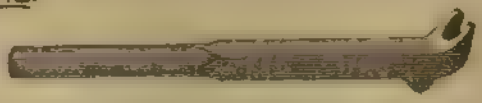
No. 30—Lining Bar, Diamond Point.

Weight each, lbs.	18	20
Length about, feet	5	5
Per lb.	$0.08	.08

No. 31—Tamping Bar; with Flattened Rectangular Tamper.

Weight each, lbs.	14
Length about, feet	6
Per lb.	$0.09

CLAW BARS.



Forged Steel Oiled Finish Round Body, with Squared Lower End with Tempered Claw, and with Tempered Bent Pinch Point at Upper End

	Per Pound
No. 26—GOOSE NECK PATTERN; Length about 5 ft.; Weight each about 29 lbs.	$0.10
No. 28—VERONA PATTERN, with Heel; Length about 5 ft.; Weight each about 29 lbs.	$0.10

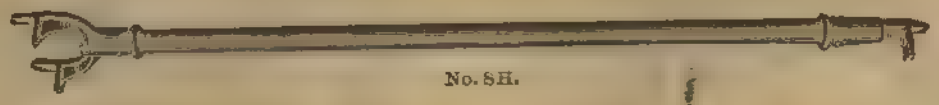
RAIL FORKS.

Forged Steel, Japanned Finish; 1¼ inch Round Handle, with Two Flattened Prongs and Chisel Point on Other End.

	Per Pound
No. 8—RAIL FORKS; Opening between Prongs 5¼ inches Wide 3¼ inches Deep. Width at Prongs 3 inches, Length 33 inches, Weight each about 14 lbs.	$0.15

Packed Loose.

TRACK GAUGES.



No. SH.

Track Rests of No. BH Gauge.

No. CH

HUNTINGTON PATTERN GAUGES.

Gas Pipe Cross-piece 1½ inches in Diameter, Plain Finish, with Malleable Iron Socketed Track Rests. One Arched, with Double Bearing on Track; the other Plain with Single Bearing on Track; Standard Gauge, 4 feet 8½ inches between Rails.

BUDA: PIPE THREADED AND RIVETED INTO 3½ INCH SOCKET with Machined Openings, Milled Track Bearings.

	Per Dozen
No. BH—NOT INSULATED; Weight per dozen about 150 lbs.	$24.00
‡No. BHI—INSULATED: Weight per dozen about 150 lbs.	34.00

CAFFREY: WITH GUARD RAIL ATTACHMENT; Same Grade as BUDA, but Shows Distance at which to Set Guard Rail.

	Per Dozen
‡No. CH—NOT INSULATED: Weight per dozen about 150 lbs.	$30.00
‡No. CHI—INSULATED. Weight per dozen about 150 lbs.	40.00

STANDARD; PIPE RIVETED INTO 3½ INCH SOCKET; Parts not Machined or Milled.

	Per Dozen
No. SH—NOT INSULATED; Weight per dozen about 150 lbs.	$20.00
‡No. SHI—INSULATED: Weight per dozen about 150 lbs.	30.00

One-half Dozen in a Bundle.

No. BCG¹

INSULATED CIRCULAR PATTERN GAUGES.

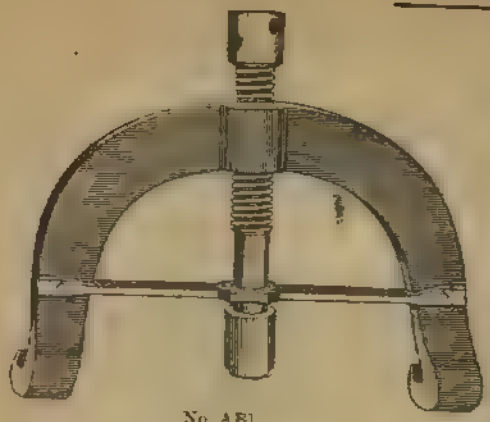
Seasoned Hardwood Cross-piece 1½x1½ inches in Diameter, Oiled Finish, with Japanned Malleable Iron Radial Track Rests, Bolted on; Standard Gauge, 4 feet 8½ inches between Rails.

	Per Dozen
‡No. BCI—BUDA WITHOUT GUARD RAIL ATTACHMENT. Weight per dozen about 180 lbs.	$36.00
‡No. BCGI—BUDA: WITH GUARD RAIL ATTACHMENT: Weight per dozen about 180 lbs.	40.00

One-fourth Dozen in a Bundle.

‡Goods marked thus (‡) are not carried in stock and can only be furnished by shipment direct from factory

RAIL BENDERS.



No. AB1

No. A1.

Jim Crow Pattern

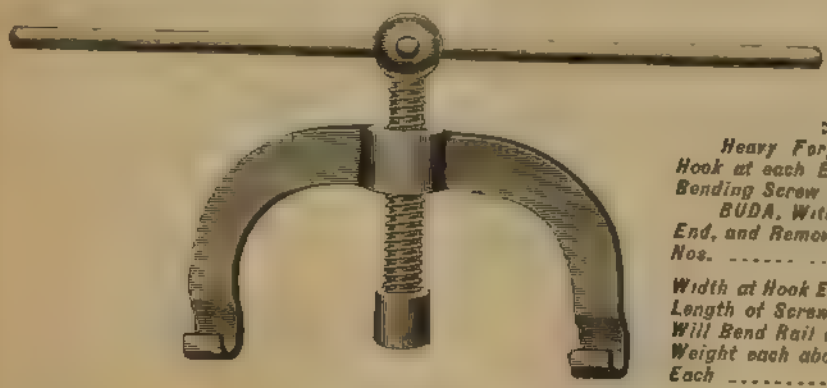
Heavy Forged Steel Frame, Japanned Finish, with Hook at Each End to Grip Rail, and with Threaded Steel Bending Screw or Plunger.

ACME with Bolted Steel Crossbar; Screw has Perforated Extension End to Insert a Bar for Turning.

Nos.	AB1	AB2	AB3	AB4	AB5
Width at Hook End, inches	28	24	20	16	14
Length of Screw Bar, inches	24	22	20	18	18
Will Bend Rail about lbs	80 to 100	60 to 75	40 to 55	25 to 30	12 to 20
Weight each about, lbs.	225	175	125	85	70
Each	$50.00	40.00	30.00	24.00	18.00

ACME, with Bolted Steel Crossbar, Heavy Steel Hexagon Nut and Straight Track Wrench for Turning.

Nos.	A1	A2	A3	A4	A5
Width at Hook End, inches	28	24	20	16	14
Length of Screw Bar, inches	18	18	17	17	13
Will Bend Rail, about lbs	80 to 100	60 to 75	40 to 56	25 to 30	12 to 20
Weight each about, lbs.	225	175	125	85	70
Each	$50.00	40.00	30.00	24.00	18.00



‡JIM CROW PATTERN.

Heavy Forged Steel Frame, Japanned Finish, with Hook at each End to Grip Rail, and with Threaded Steel Bending Screw or Plunger.

BUDA, Without Crossbar; Screw has Perforated Ball End, and Removable Steel Bar for Turning.

Nos.	B5	B6	B7	B8
Width at Hook End, inches	15½	17½	22	25
Length of Screw Bar, inches	12	14½	15½	19
Will Bend Rail about, lbs	18	20	25	30
Weight each about, lbs	35	50	65	95
Each	$14.00	18.00	20.00	26.00

VERONA TRACK CHISELS.

Extra Grade Crucible Forged Steel, Oil Finished, with Oval Eye and Slightly Octagon Tapering Poll. Extra Oil Tempered.

No. V1—TRACK CHISELS; With 1¼ inch Curved Cold Chisel Bit; Average Length 8¾ inches.

Weight each, lbs.	4	4½	5
Per lb.	$0.25	.25	.25

Packed Loose.

‡Goods marked thus (‡) are not carried in stock and can only be furnished by shipment direct from factory.

RAILROAD TRACK TOOLS.

CARRYING TONGS.

Forged Steel, Japanned Finish; 1½ inch Round Handles, Squared Arms, Hinged on Heavy Steel Rivet.

Per Pound

No. 20—RAIL TONGS; For 35 to 100 lb. Rail, with Blunt Oval Grip; Extreme Spread of Handles, Closed, 36 inches; Drop, from Handles to Jaws, 12 inches; Weight each about 19 lbs. $0.15

Forged Steel, Japanned Finish; 1½ inch Round Handles; Squared Arms, Hinged on Heavy Steel Rivet.

Per Pound

No. 21—TIE TONGS, with Wide Pronged Grip; Extreme Spread of Handles, Closed, 32 inches; Drop from Handles to Points, 14 inches; Weight each about 13 lbs. $0.20

TRACK WRENCHES.

Forged Steel, Japanned Finish; Oval Body, with Flattened Ends.

No. 4—Straight, Single End.

For Nut, inches	1¼	1⅜	1½
Length, inches	24	24	24
Weight each about, lbs.	4½	4½	4½
Per lb.	$0.15	.15	.15

Forged Steel, Japanned Finish; Oval Body, with Flattened Ends.

No. 2—Curved or "S" Pattern, Double End.

For Nut, inches	1¼ and 1⅜	1¼ and 1½
Length, inches	24	24
Weight each about, lbs.	5½	5½
Per lb.	$0.25	.25

No. 2½—Straight, Double End

For Nut, inches	1¼ and 1⅜	1¼ and 1½
Length, inches	24	24
Weight each about, lbs.	5½	5½
Per lb.	$0.20	.20

SPIKE MAULS.

Crucible Forged Steel Oiled Finish; With Oval Eye and Hardened Polished Faces; One Large and One Small Face

REGULAR PATTERN.

No. 22—With Slightly Octagon Tapering Polls

Weight each about, lbs.	6	8	10	12
Length about, inches	10½	11½	12½	13
Per lb.	$0.12	.12	.12	.12

PITTSBURG PATTERN.

No. 24—With Round Polls.

Weight each about, lbs.	6	8	10	12
Length about, inches	12	13½	15	16
Per lb.	$0.15	.15	.15	.15

TRACK PUNCHES.

TRACK CHISELS.

Special Crucible Forged Steel, Oiled Finish, with Oval Eye and Slightly Octagon Tapering Poll; Extra Oil Tempered

No. 12—Tapering to ⅝ inch Square Punching End.

Weight each, lbs.	4	4½	5
Length about, inches	8½	8¾	9
Per lb.	$0.25	.25	.25

No. 14—With 1¼ inch Curved Cold Chisel Bit.

Weight each, lbs.	4	4½	5
Length about, inches	8½	8¾	9
Per lb.	$0.25	.25	.25

Packed Loose.

ROSETTES.

STAMPED STEEL.

	Per Gross
No. 40X—XC PLATE (TINNED); 1½ inch Diameter; 1¼ inch Loop	$2.00
No. 40/IR—IMITATION RUBBER 1½ inch Diameter; 1¼ inch Loop	2.00
No. 42X—XC PLATE (TINNED); 1¾ inch Diameter; 1½ inch Loop	2.30
No. 42/IR—IMITATION RUBBER [illegible] inch Diameter; 1½ inch Loop	2.30

One-half Gross in a Cardboard Box.

Weight per Gross about 3 lbs.

	Per Gross
No. 992—NICKEL PLATED; 1½ inch Diameter; 1¼ inch Loop	$5.00
No. 990—BRASS PLATED; 1½ inch Diameter, 1¼ inch Loop	5.00
No. 642—NICKEL PLATED; 1¾ inch Diameter 1½ inch Loop	6.00
No. 640—BRASS PLATED; 1¾ inch Diameter, 1½ inch Loop	6.00

One-quarter Gross in a Cardboard Box.

Weight per Gross about 3 lbs.

Pearl Edge

	Per Gross
No. 1092—NICKEL PLATED; 1¾ inch Diameter; 1½ inch Loop	$6.00

Our Modern Factory Equipped with the Latest Machinery, enables us to Produce the Best of everything at a Low Price.

Peerless.
Beveled Edge.

	Per Gross
No. 62—NICKEL PLATED; 1¾ inch Diameter; 1½ inch Loop	$6.00
No. 60—BRASS PLATED; 2 inch Diameter, 1½ inch Loop	7.00

Braided Edge.

	Per Gross
No. 7002—NICKEL PLATED; 1¾ inch Diameter; 1½ inch Loop	$6.00

Ruffled Edge.

	Per Gross
No. 2032—NICKEL PLATED; 1¾ inch Diameter; 1½ inch Loop	$6.00

One-quarter Gross in a Cardboard Box.

Weight per Gross about 6 lbs.

ROSETTES.

Acorn.
Stamped Steel.

Per Gross

No. 602—NICKEL PLATED; 2 inch Diameter; 1½ inch Loop $7.00

No. 600—BRASS PLATED; 2 inch Diameter; 1½ inch Loop 7.00

Jewel.
Stamped Steel.

Per Gross

No. 31—GILT PLATED; 1½x⅞ inch; 1 inch Loop; Solid Filled $8.00

No. 32—NICKEL PLATED; 1½x⅞ inch; 1 inch Loop; Solid Filled 8.00

Weight per Gross about 6 lbs.

Oval Raised.
Stamped Steel.

Per Gross

No. 1551—GILT PLATED; 1½x15/16 inch; 1 inch Loop; Solid Filled $8.00

No. 1562—NICKEL PLATED; 1½x15/16 inch; 1 inch Loop; Solid Filled 8.00

Oval Rope Edge.
Stamped Steel.

Per Gross

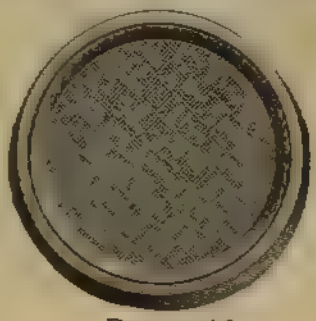
No. 1451—GILT PLATED; 1½x15/16 inch; 1 inch Loop; Solid Filled $8.00

No. 1451Gilt—RUBBER CENTER; Gilt Rim; 1½x15/16 inch; 1 inch Loop; Solid Filled. 8.00

Duranoid.

Per Gross

No. 34—BLACK DURANOID; Gilt Center; 1½ inch Diameter; 1¼ inch Metal Loop $7.00



Duranoid.

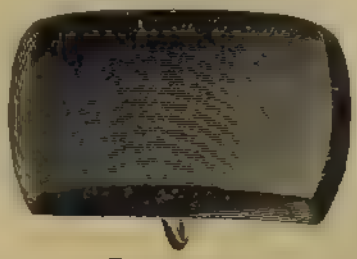
Per Gross

No. 52—BLACK DURANOID; 1½ inch Diameter; 1¼ inch Metal Loop $6.00

Duranoid.

Per Gross

No. 100—BLACK DURANOID; 1½x1 inch; 1 inch Metal Loop $6.00



Duranoid.

Per Gross

No. 105—BLACK DURANOID; 1½x1 inch; 1 inch Metal Loop $6.00

Weight per Gross about 12 lbs.

One-quarter Gross in a Cardboard Box.

ROSETTES.

	Per Dozen
No. 1—SOLID BRASS, Nickel Plated Rim, with Crystal Center Assorted Colors, 1½ INCHES IN DIAMETER; ⅞ inch Wire Loop set in Back	$1.50
No. 2—1¾ INCHES IN DIAMETER; With 1 inch Loop; Otherwise same as No. 1	1.50
No. 3—GILT PLATED RIM; 1¾ INCHES IN DIAMETER; 1 inch Loop; Otherwise same as No. 1	1.50

	Per Dozen
No. 610G—SOLID GLASS, Set in Brass Shell; Back Enameled, with Gilt Block Initial, All Letters from A to Z, 1¼ inches in Diameter, 1 inch Loop, set in Back	$1.80

IN ORDERING ALWAYS STATE LETTERS WANTED.

One-sixth Dozen on a Card; One Dozen Cards in a Cardboard Box.

Weight per Dozen about 1½ lbs.

ASSORTED CRYSTAL ROSETTES ON DISPLAY CARDS.

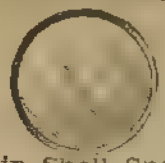
SIX PAIRS ROSETTES with Brass Loops, Assorted Figures, on Strong Assorted Color Cards.

	Per Card
No. B—Gilt Figures, on Solid Brass Nickel Plated Rims; Assorted 1½ and 1¾ inches in Diameter; With ⅞ and 1 inch Loops	$1.50
No. D—Assorted Square and Round Rosettes, Otherwise same as No. B	1.50

One Dozen Cards in a Cardboard Box; Weight per Dozen about 14 lbs.

—1980—

SPOTS.



Plain Shell Spots.

Copper Wire Prong, Soldered on Back, for Attachment to Harness.

Size, inches		1/2	5/8	3/4	7/8
No. 1006N—BRASS XC PLATE (TINNED)	Per Gross..	$1.10	1.20	1.20	1.40
No. 1006B—SOLID BRASS, Polished	Per Gross..	1.10	1.20	1.20	1.40

Filled Concord Spots.

Copper Rivet, Soldered on Back, for Attachment to Harness.

Size, inches		3/8	1/2	5/8	3/4	7/8	1
No. 501/S—PURE SILVER ON COMPOSITION, Polished	Per Gross.	$2.00	3.00	3.50	4.20	5.00	6.00
No. 501B—SOLID BRASS, Polished	Per Gross..	2.00	3.00	3.50	4.20	5.00	6.00

3/8 and 1/2 inch, One Gross in a Cardboard Box; Remainder, One-half Gross in a Cardboard Box.
Weight per Gross about 2 lbs.

ORNAMENTS.

Fancy Head Shell, Saddle Nails.

Size, inches		3/4	7/8	1
No. 1001—SOLID BRASS, Nickel Plated	Per Gross..	$1.60	1.80	2.20

Weight per Gross about 2 lbs.

Tie Ornaments.

Size, inches		1 1/2	1 3/4
No. 18—SOLID BRASS, Nickel Plated	Per Gross	$9.00	10.00

Weight per Gross about 3 lbs.

LETTERS.

SIMMONS

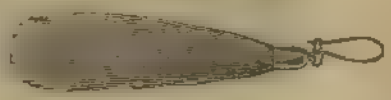
Solid Block Letters.

Can Furnish All Letters from A to Z; Brass Prongs, Soldered on Back, for Fastening.

Height, inches		5/8	3/4	1	1 1/4	1 1/2
No. 615N—SOLID BRASS, NICKEL PLATED	Per Dozen	$1.00	1.20	1.20	1.60	1.80
No. 615B—SOLID BRASS, POLISHED	Per Dozen..	1.00	1.20	1.20	1.60	1.80

One Gross in a Cardboard Box.
Weight per Gross about 2 lbs.

PLUMES.



Horse Hair, with Nickel Plated Brass Cap and Wire Loop.

	Per Dozen Pairs
No. 2R—RED; Length 12 inches	$6.00
No. 2Y—YELLOW; Length 12 inches	6.00
No. 2G—GREEN; Length 12 inches	6.00
No. 2B—BLUE; Length 12 inches	6.00

	Per Dozen Pairs
No. 3R—RED; Length 10 inches	5.00
No. 3Y—YELLOW; Length 10 inches	5.00
No. 3B—BLUE; Length 10 inches	5.00

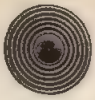
Packed Loose; Weight per Dozen about 2 lbs.

ROSETTES.

No. 4.

No. 105.

No. 404.



No. 204.

		Per gross
No. 4.	Black Fibrone, 1⅝ in.	$6.00
No. 105.	Black Fibrone, 1⅝ in.	6.00
No. 404.	Black Fibrone, 1½ in.	$6.00
No. 204.	Black Fibrone, 1⅝ in.	6.00

No. 306.

No. 504.

No. 108.

		Per gross
No. 306.	Black Fibrone, 1¾ in.	$6.00
No. 504.	Black Fibrone, 1½ in.	6.00
No. 108.	Black Fibrone	$6.00
No. 108.	White Fibrone	6.00

No. 116.

No. C.

Nos. 139 and 149.

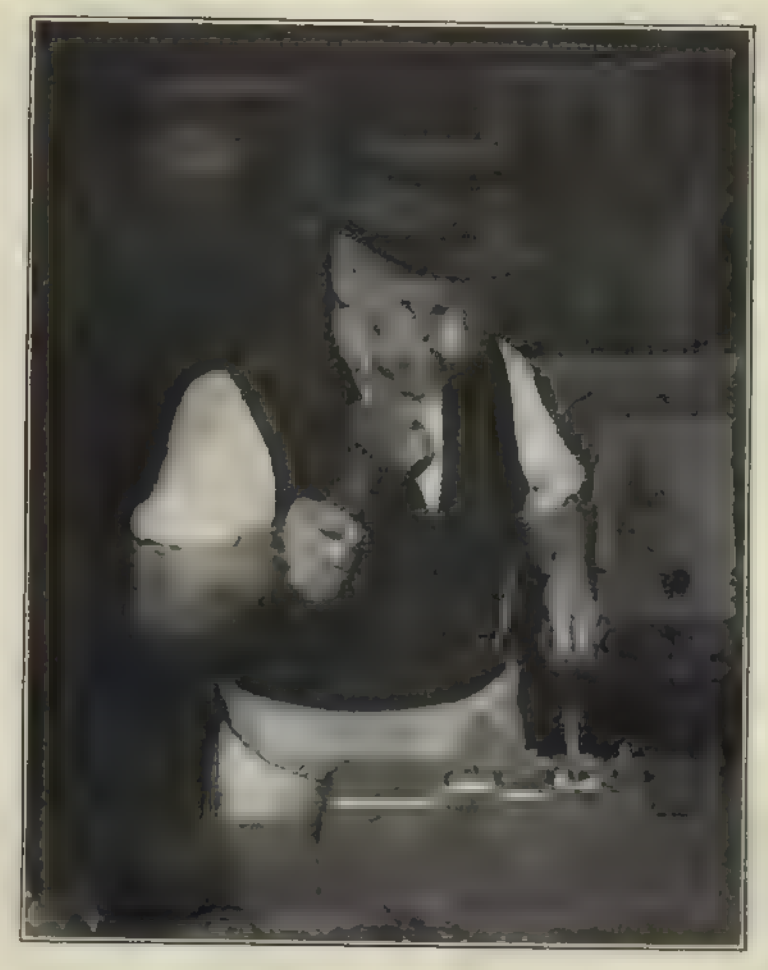
		Per gross
No. 116.	Nickel or Brass, 1¾ in.	$6.00
No. C.	XC Plate, 1½ in.	1.70
No. C.	XC Plate, 1¾ in.	1.75
No. 139.	Nickel or Brass, 2 in.	$ 8.00
No. 149.	Nickel or Brass, 2¼ in.	12.00

		Per gross
No. A.	XC Plate, 1½ in.	$1.70
No. A.	XC Plate, 1¾ in.	1.80
No. 28.	Glass Initial	Per dozen pairs $2.00

		Per dozen pairs
No. 95F.	Glass, 1½ in.	$2.00
No. 95F.	Glass, 1¾ in.	2.00
No. 110.	Glass, black back, gilt letter	$3.00

KEEN KUTTER POCKET KNIVES.

HOW THEY ARE MADE.



The above is a photograph of Mr. Holden, one of the workmen of the Walden Knife Company, who for over thirty years has been **Forging by Hand** the Blades for our **KEEN KUTTER** Pocket Knives

Mr Holden is now 72 years of age, and has spent his entire life in the manufacture of Pocket Knives, having learned the trade directly from his father, and after learning the trade, has spent a number of years in the factories of Joseph Rodgers & Sons, and Geo. Wostenholm & Son, Sheffield, England.

He is a man of artistic temperament in many ways thoroughly honorable in every respect, and absolutely loyal to his faith in the superiority of **KEEN KUTTER** Hand Forged Pocket Knives over all other brands He fairly represents the type of English workmen by whom nearly every number of our entire line of **KEEN KUTTER** Pocket Knives is made.

TRADE MARK:
E. C. SIMMONS *KEEN KUTTER*.
REGISTERED

Prizes Awarded *KEEN KUTTER* Cutlery

Fac Simile Certificate of Grand Prize Awarded to Simmons Hardware Company for *KEEN KUTTER* Cutlery.

Prizes Awarded *KEEN KUTTER* Cutlery.

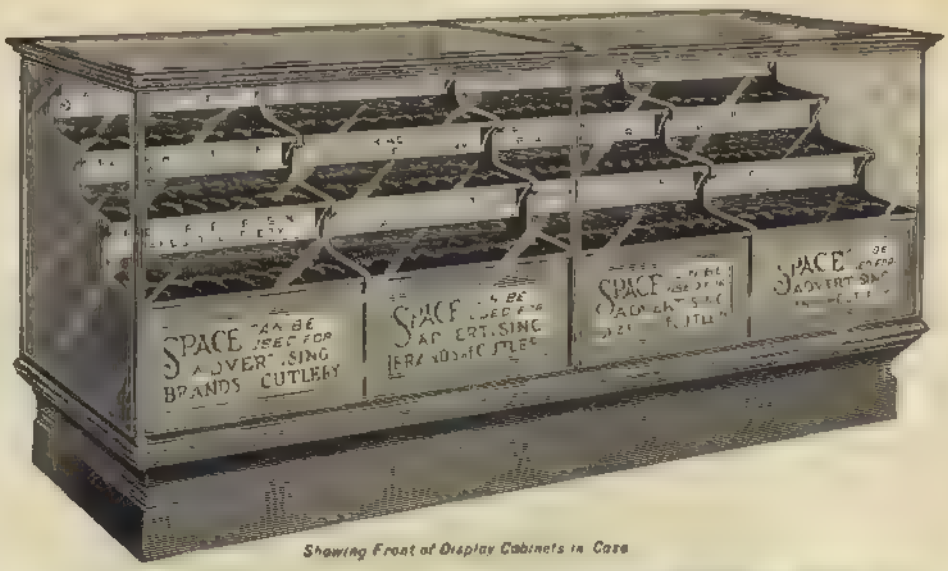
GRAND PRIZE

Awarded to the Simmons Hardware Company for the Superior Excellence of Quality and Finish of their *KEEN KUTTER* Cutlery in competition with the World's Best Productions, by the International Jury of Awards, at the Louisiana Purchase Exposition, held at St. Louis, Mo., U. S. A. 1904

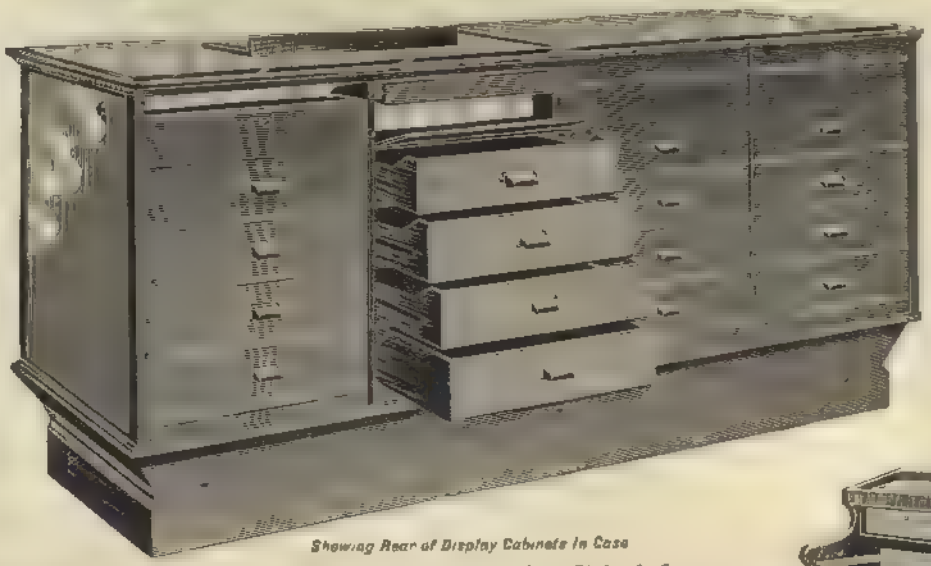
HIGHEST AWARD.

Given to the Walden Knife Company and Simmons Hardware Company for the Superior Excellence of Quality and Finish of their Walden and *KEEN KUTTER* Pocket Knives, in competition with the World's Best Productions at the Lewis and Clark Centennial Exposition, Portland, Oregon, U. S. A. 1905

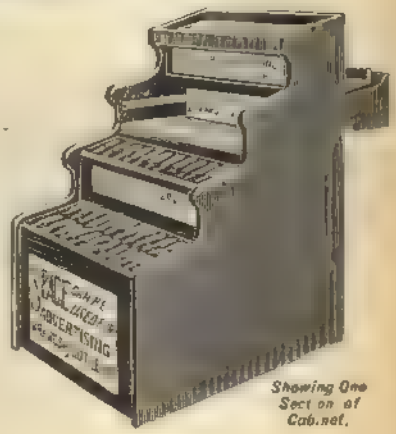
‡CUTLERY DISPLAY CABINETS.



Showing Front of Display Cabinets in Case



Showing Rear of Display Cabinets in Case



Showing One Section of Cabinet.

‡No. 98—Cabinet Made in Oak only, Oil Finish; constructed to fit in 4, 6, 8, 10, 12 and 14 foot Show Cases, similar to those illustrated on the four preceding pages, but without Doors; 30⅝ inches High; Width (each Section) about 23 inches; each Section has five tiers of Drawers, four of these with Plush Lined Display Trays at Front, with Wire Spring Clasps to hold samples, the Trays can be removed from rear of Case as drawer is pulled out; by this arrangement only samples of Cutlery are handled by the purchaser.

4 foot Case requires 2 Sections,
6 foot Case requires 3 Sections,
8 foot Case requires 4 Sections,
10 foot Case requires 5 Sections,
12 foot Case requires 6 Sections,
14 foot Case requires 7 Sections,

Per Section, $22.00

This Price DOES NOT include the Show Case.

NOTE—The Sections are Glued together and shipped separate from Show Case, the rate of freight being the same as shipped knocked down.

Weight per Section about 90 lbs.

‡Goods marked thus (‡) are not carried in stock and can only be furnished by shipment direct from factory.

SLEIGH BELLS.

No. 5123.

Alaska; Neck Straps.

Bell Metal Bells, Brass Finish, Russet Harness Leather Lined with Soft Pebbled Russet Leather, Fastened by Enameled Cloth Loops; Buckle with Chafe and Billet Riveted on; Bells Wire Fastened.

Per Strap

No. 5123—9 SINGLE THROAT BELLS; Assorted Sizes, Two 1 inch, Two 1¼ inch, Two 1⅜ inch; Two 1½ inch, One 1⅝ inch; Strap 1 inch Wide, 36 inches Long; Weight per Strap about 3 lbs. $0.90

No. 5123—13 SINGLE THROAT BELLS; Assorted Sizes, Two 1¼ inch, Two 1¼ inch; Two 1⅜ inch; Two 1½ inch; Two 1⅝ inch; Two 1¾ inch; One 1⅞ inch; Strap 1 inch Wide, 52 inches Long; Weight per Strap about 3 lbs. .. 1.50

Per Strap

No. 4123—15 SINGLE THROAT BELLS; Assorted Sizes; Two 1⅛ inch, Two 1¼ inch, Two 1⅜ inch, Two 1½ inch, Two 1⅝ inch, Two 1¾ inch, Two 1⅞ inch; One 2 inch, Strap 1 inch Wide, 52 inches Long; Weight per Strap about 3 lbs. $1.90

Two Straps in a Package.

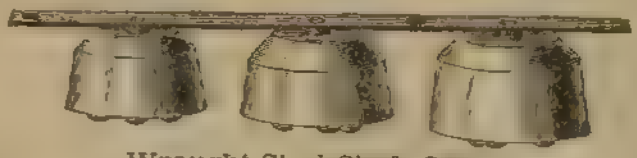
Black Harness Leather Straps 1 inch Wide, 12 inches Long, Cast Bell Metal Bells Rough, Bright Outside, Polished; Wire fastened to Strap.

Per Pair

No. 6—6 BELLS TO PAIR; 2⅛ inches in Diameter; Weight per pair about 1 lb. $1.00

No. 8—8 BELLS TO PAIR; 2⅛ inches in Diameter; Weight per pair about 1¼ lbs. 1.75

One Pair in a Package.



Wrought Steel Shaft Chimes.

Japanned Iron Strap ¾ inch Wide, 11 inches Long; Wrought Steel Bells, Nickel Plated, with 3 Tongues to each Bell, Riveted to Strap; 3 Bells to a Strap; 2¼, 2⅜ and 2½ inches in Diameter; Each Size gives a Different Tone.

Per Pair

No. 10—6 BELLS TO PAIR; Weight per pair about 1¾ lbs. $1.50

One Pair in a Cardboard Box.

No. 15.

Swiss Shaft Chimes.

CAST BELL METAL, NICKEL PLATED, with 3 Tongues to each Bell, Riveted to Strap.

Per Pair

No. 15—Japanned Iron Strap ¾ inch Wide, 11 inches Long, 3 BELLS TO A STRAP, 2¼, 2⅜ and 2½ inches in Diameter; Each Size gives a Different Tone; 6 Bells to Pair; Weight per pair about 2¼ lbs. $2.25

No. 20—Japanned Iron Strap, ⅞ inch Wide, 14 inches Long; 4 BELLS TO A STRAP, 2¼, 2⅜, 2½ and 2⅝ inches in Diameter (8 Bells to Pair, Harmonized); otherwise same as No. 15; Weight per pair about 3 lbs. 2.80

Japanned Iron Strap ⅞ inch Wide, 14 inches Long; WROUGHT STEEL BELLS, NICKEL PLATED, with 3 Tongues to each Bell, Riveted to Strap; 4 Bells to a Strap, 2¼, 2⅜, 2½ and 2⅝ inches in Diameter, Each Size gives a Different Tone.

Per Pair

No. 12—8 BELLS TO PAIR; Weight per pair about 2¼ lbs. $1.75

One Pair in a Box.

SLEIGH BELLS.

No. 230

Globe Bell.

Globe; Body Straps.

Extra White Metal Bells, POLISHED; Black Harness Leather; Buckle, Billet and Bells Riveted on.

	Per Strap
No. 230—30 SINGLE THROAT 1¼ INCH BELLS; Strap 1 inch Wide 7 feet, 10 inches Long	$3.50
No. 236—36 BELLS, otherwise same as No. 230	3.80
No. 330—30 SINGLE THROAT 1⅜ INCH BELLS; Strap 1 inch Wide, 7 feet, 10 inches Long	3.80
No. 336—36 BELLS, otherwise same as No. 330	4.40

Globe; Body Straps.

Extra White Metal Bells, NICKEL PLATED; Black Harness Leather Edge Bound with Red Enameled Leather. Scallope, Cut, Buckle, Billet and Bells Riveted on.

	Per Strap
No. 1230—30 SINGLE Throat 1¼ inch Bells; Strap 1 inch Wide; 7 feet, 10 inches Long	$4.90
No. 1236—36 BELLS otherwise same as No 1230	5.50

No. 1530

Antartic Bells.

Antartic; Body Straps.

Extra White Metal Rim Bells, NICKEL PLATED; Black Harness Leather; Buckle, Billet and Bells Riveted on.

	Per Strap
No. 1530—30 SINGLE THROAT 1½ INCH BELLS; Strap 1 inch Wide, 7 feet, 10 inches Long	$4.50
No. 1536—36 BELLS, otherwise same as No. 1530	5.50

Weight per Strap about 5 lbs

No. 534

Zone Bells.

Zone; Body Straps.

Bell Metal Bells, BRASS FINISH; Russet Harness Leather, Lined with Soft Pebbled Russet Leather, Fastened by Enameled Cloth Loops; Buckle, with Chafe and Billet, Riveted on; Bells Wire Fastened.

	Per Strap
No. 534—36 SINGLE THROAT 1½ INCH BELLS, Strap 1 inch Wide 7 feet, 10 inches Long, Weight per strap about 3 lbs.	$2.50
No. 734—30 SINGLE THROAT 1⅜ INCH BELLS, otherwise same as No 534, Weight per strap about 3 lbs	2.75

Canadian Bells.

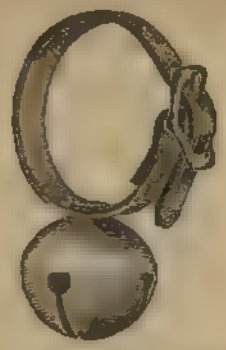
Canadian; Body Straps.

Bell Metal Bells. BRASS FINISH: Russet Harness Leather; Lined with Soft Pebbled Russet Leather, Fastened by Enameled Cloth Loops; Buckle with Chafe and Billet Riveted on; Bells Wire Fastened.

	Per Strap
No. 1610—19 SINGLE THROAT BELLS Assorted Sizes; Four 1¼ inch; Four 1⅜ inch; Four 1½ inch; Two 1⅝ inch; Two 1¾ inch; Two 1⅞ inch; One 2 inch; Straps 1 inch Wide, 7 feet 10 inches Long; Weight per Strap about 3¾ lbs.	$2.75
No. 1611—23 SINGLE THROAT BELLS; Assorted Sizes; Four 1⅛ inch; Four 1¼ inch; Four 1⅜ inch; Four 1½ inch; Two 1⅝ inch; Two 1¾ inch; Two 1⅞ inch; One 2 inch; Straps 1 inch Wide, 7 feet 10 inches Long; Weight per strap about 3¾ lbs.	$3.30

Two Straps in a Package.

TURKEY BELLS.



Turkey; Steel Nickel Plated.

Per Dozen

No. 10T—With Double Throat, 1¼ inches Diameter; ¼x7 inch Black Strap, and Buckle Riveted to Bell; Weight per dozen about 2¼ lbs $1.20

Two Dozen in a Cardboard Box.

SLEIGH BELLS.

White Bell Metal, Rough Inside, Polished Outside.

Nos.	2	3	4	5
Diameter, inches	2¼	2⅝	2⅞	3¼
Weight per dozen about, lbs	[illegible]	3½	5	6¾
Per pound	$0.90	.90	.90	.90

Packed Loose.

SLEIGH BELLS.

No. 0R.

No. 3R.

No 6R.

Bell Metal, Brass Finish, Polished.

Nos	00R	0R	1R	2R	3R	4R	5R	6R	8R
Diameter, inches	⅞	1	1⅛	1¼	1⅜	1½	1⅝	1¾	2
Weight per dozen about, lbs	1	1⅛	1 9/16	1¾	1⅞	1½	1¾	2	3
Per dozen	$0.40	.45	.50	.60	.80	.90	1.10	1 35	1 75

Packed Loose.

No. 401

Arctic Bell.

Arctic; Body Straps.

Extra White Metal Bells, Black Harness Leather; Buckle, Billet and Bells Riveted on.

Per Strap

No. 401—30 POLISHED BELLS, Double Throat 1¼ inch Bells, Strap 1 inch Wide, 7 feet, 10 inches Long.... $3 60

No. 402—36 POLISHED BELLS, otherwise same as No 401 ..... 3 80

No. 601—30 NICKEL PLATED BELLS otherwise same as No 401 ..... 4 40

No. 602—36 NICKEL PLATED BELLS otherwise same as No 401 ..... 4.90

Weight per Strap about 5 lbs.; Two Straps in a Package.

COW BELLS.

Cast Bell Metal; Polished Rim; Natural Finish Bowl and Loop; Cast Iron Tongue, with Wire Hanger.

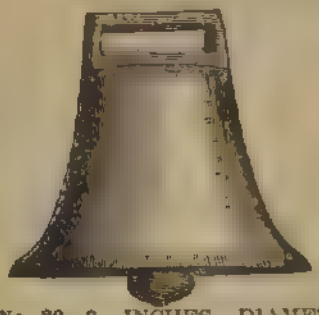
Per Dozen

No. 45—DIAMETER OF FACE 4½ INCHES; Width of Loop 1½ inches; Height over all 4½ inches; Weight per dozen about 19 lbs.... $9.50

No. 55—DIAMETER OF FACE 5 INCHES; Width of Loop 1½ inches; Height over all 5 inches; Weight per dozen about 25 lbs... ... 12.50

Packed Loose.

HORSE-CAR BELLS.



White Metal; Rough; Loop and Tongue Cast into Bell

Per Pound

No. 30—3 INCHES DIAMETER; Weight per dozen about 8 lbs..... $0.60

No. 35—3½ INCHES DIAMETER; Weight per dozen about 10 lbs..... .60

No. 40—4 INCHES DIAMETER; Weight per dozen about 13 lbs.. 60

Packed Loose.

SHEEP BELLS.

Common Bell Metal Bell; 1¼x1¾ inches in Diameter; Brass Strap ⅝ inch Wide 20 inches Long, with Buckle Riveted to Strap; Bell Wire Fastened.

Per Dozen

No. 25—Weight per dozen about 5 lbs..... $3.50

Packed Loose.

TEAM BELLS.

Bell Metal, Polished, with Malleable Iron XC Plate (Tinned) Snap, Riveted on; Height of Bell 1⅞ inches; Height over all 4 inches.

Per Dozen

No. 3/8—2¾ INCHES DIAMETER; Weight per dozen about 5½ lbs..... $4.20

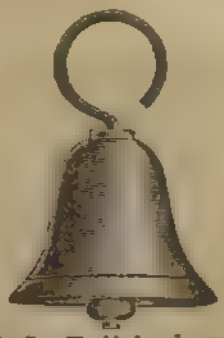
One-half Dozen in a Package.

TEAM BELLS.

Stamped Steel, Copper Plated; 1 inch Metal Loop, Riveted.

Per Dozen

No. 130—3⅜ INCHES DIAMETER; Weight per dozen about 9 lbs..... $3.00



BELL METAL, Polished, with Tongue attached to Hook.

Per Dozen

No. 3H—2⅝ INCHES DIAMETER; Weight per dozen about 4 lbs..... $3.50

Two Dozen in a Cardboard Box.

RAZORS

In Point of Extra Nice Finish and Appearance As Well As Quality

For The Price This Line is Truly Matchless.

No. 273. "Prince's Own" Razor, ⅝ inch blade etched "The Prince's Own," hollow point, black horn handle, brass rivets, each in case. Dozen 4.75

No. 273½. Prince's Own Razor, as above, white bone handle. Dozen 1.90

No. 225. Razor, word "President" etched on the blade, square point, flat ground, ⅝ in. blade polished with finished tang, black celluloid handle, each in case. Dozen 2.00

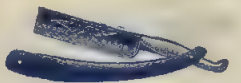
No. 226. As above, white bone handle Dozen 2.15

No. 904. Silver Steel Razor, full hollow ground, ⅝ inch blade, etched "Silver Steel fully warranted," ringing tempered steel, black rubber handle, each in case, stamped $3.00, very good value. Dozen 2.75

No. 903. Razor. "Barber's Choice" etched on blade, celebrated German make, ⅝ inch hollow ground ringing tempered steel blade, ebonized handle, case marked $3.00 each. Dozen 2.85

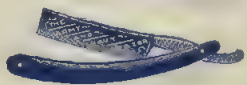
No. 903½. Razor, ⅝ inch blade. Etched "Barber's Choice," hollow ground, ringing tempered steel, fine polished, clear horn handle, "Special for Auctioneers." Case marked 3.00 each. Dozen 2.85

No. 300. Razor. ⅝ inch hollow ground ringing steel blade, etched "Extra Hollow Ground, Warranted," file tang, ebonized handle, in gilt lettered case stamped, "$3.00 each." Dozen 2.95



No. 301. Razor. 6-8 inch hollow ground ringing tempered steel, "Eagle" etched on blade in gilt lettered "The Improved Eagle Razor," black rubber handle, case stamped in gilt, "Price $3.00." Dozen. 2.95

No. 302. Razor. ⅝ inch hollow ground, ringing tempered steel blade, etched "Extra hollow ground, warranted." White celluloid handle. Case stamped in gilt, "Price $3.00 each." Dozen.... 3.25



No. 318. Razor, etched on blade "Army and Navy Razor," satin finish, in fancy designs, flat side finely polished, file tang, full hollow ground, square point, ⅝ in. blade, finely tempered ringing razor, black celluloid handle. Dozen..... 3.25

SPECIAL MAGNETIZED RAZOR.

No. 515. Magnetized Razor. Fine quality, ⅝ inch blade, square, highly tempered, black rubber handle, full hollow ground etched blade, powerfully magnetized, will pick up scraps of metal, an especial seller for auctioneers. Dozen..... 3.25

SWEDISH RAZOR.

No. 305. Razor. ½ inch blade, made of best Swedish steel, constantly demanded by the trade. Each in case. Dozen..... 3.10

MAGNETIZED SWEDISH RAZOR.

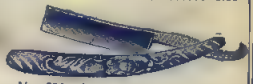
No. 320. Razor. Etched Swedish Steel, hollow ground, magnetized on blade, white celluloid handle, file tang, good polished steel, full hollow ground, ⅝ in. blade, square point, fine ringing magnetized steel, well finished for low priced goods. Dozen 3.25

"REGISTERED TRADE MARK."

No. 1017. "Our Special," "Black Steel" etched on blade, ⅝ inch extra hollow ground; ringing tempered polished steel blade. Black rubber handle. Case stamped in gilt letters, "Price $3.00 each." Dozen 3.25

No. 304. Razor. ⅝ inch polished blade, stamped in gilt letters. Fully warranted embossed black rubber handle. Each in case stamped in gilt, "Price $3.00 each." Dozen 3.50

No. 303. Razor, Imperial Brand, ⅝ inch hollow ground ringing tempered polished steel blade, etched "Extra hollow ground, fully warranted." Celluloid bamboo handle; imitation of a $12.00 razor. Case stamped in gilt, "$3.00 each." Dozen 3.50

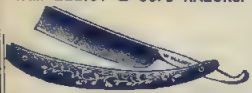


No. 324. Razor. Very finely polished full hollow ground blade, best tempered ringing steel, very superior edge, square point, ⅝ inch blade, file tang, stamped, spiral design white celluloid handle embossed on one side with art portraits and flowers, assorted designs. Per dozen 3.50

Wm. Elliot & Co.'s and Wade & Butcher Razors

These are two well-known brands that strongly appeal to certain class of trade that buy these goods for their favorable reputation.

WM. ELLIOT & CO.'S RAZORS.



No. 19. Elliot Razors, made by Wm. Elliot & Co., ⅝ inch blade, hollow point, full hollow ground ringing blade, full polished tang, embossed black rubber handle celluloid tip, brass rivets, each in gilt lettered case. Dozen..... 5.25

No. 21. Elliot Razor. ⅝ inch blade, square point, full hollow ground ringing blade, polished tang, plain white flat celluloid handle, double riveted, each in gilt lettered case. Dozen..... 5.25

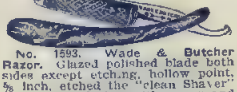
No. 55 Razor. Wm. Elliot & Co.'s celebrated make, ⅝ inch blade, straight point, full hollow ground, glazed polish, white celluloid handle, with raised design of water mill and lighthouse on one side, tinted in colors. Case stamped $3.00. Per dozen..... 6.00

No. 63. Elliot Razor. ⅝ inch blade, square point, full hollow ground, ringing blade, polished tang, flat, ebonized fancy inlaid handle, celluloid tip, each in gilt lettered case. Dozen 6.50

No. 22. Elliot Razor. ⅝ inch blade hollow point, full hollow ground, ringing blade, polished tang, ebonized handle, fancy German silver inlaid, celluloid tip, put up each in gilt lettered case. Dozen 6.50

No. 1588. Wade & Butcher's ⅝ inch, square end polished, India steel blade, etched, "You lather well, I'll shave well," transparent, brass riveted horn handle. Each in box. Doz. 2.90

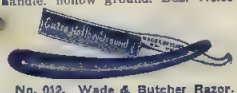
No. 984½. Wade & Butcher Razor. ⅝ inch blade, straight point, black shell handle, brand and name etched on tang, also on blade in ornamental design, well finished and polished. Each in case. Per dozen 2.90



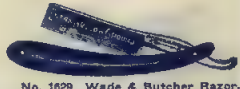
No. 1593. Wade & Butcher Razor. Glazed polished blade both sides except etching, hollow point, ⅝ inch, etched the "clean Shaver" in a ribbon design with arrow and trade mark. Tang etched with name and trade mark, colored mottled transparent shell handle. One of the great sellers with "special line" men. Fine appearing and handsomely finished razor. Each in case. Per dozen 3.15

No. 3610. Wade & Butcher's make, medium size, India 5-8 tempered steel blade, rubber handle. Dozen 4.15

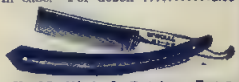
No. 100. Wade & Butcher's famous bow razor, 5-8 inch, high quality, square end. Highly polished blade, etched "The original and only genuine Bow Razor, manufactured solely by Wade & Butcher, Sheffield, England." Black rubber handle, hollow ground. Doz. ..6.00



No. 012. Wade & Butcher Razor. Full hollow ground, straight point, ⅝ inch etched in black on blade, name and brand stamped on tang, blade polished both sides, fine black rubber handle. A number well known for its quality. Each in gold stamped case. Per dozen..... 6.50



No. 1629 Wade & Butcher Razor. The Arrow Brand. Etched in black, extra hollow ground, name and brand stamped on the tang, full polished on both sides, straight point, ⅝ inch, black rubber handle. One of their reputable makes. Each in case. Per dozen 8.00



No. 15. Wade & Butcher Razor. Full hollow ground, polished both sides, plain blade, etching on tang "Special" with trade mark on one side, name on the other, straight point ⅝ inch, black rubber handle. This is a special both in the fine finish and excellent quality, surpasses many higher grade goods. Each in case. Per doz..9.00

No. 1469. Wade & Butcher Razor. Full hollow ground, polished on both sides also tang. Name and brand stamped on tang, with "Nothing Better" etched in gold on blade, black celluloid full polished handle. One of the good brands of this make. Each in case, ⅝ in. straight point. Per dozen 10.50

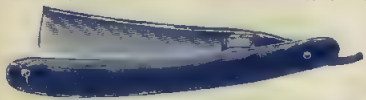
No 29 Wade & Butcher Razor. Full hollow ground, polished on both sides, no etching on blade, tang etched "Special" on one side, name on the other. White celluloid imitation Ivory handle, gold stamped. This is the well-known Arrow brand, famous for the extra fine quality of steel, straight point, ⅝ inch. Each in case. Per dozen 12.00

No. 39. Wade & Butcher Razor. Extra fine quality, full hollow ground, high gloss polish on both sides and tang, word "Special" etched on blade, in a gold design with arrow trade mark, name and trade mark etched on tang, white celluloid handle, raised ornamental floral design, imitation ivory. This is one of the special grades of this make that never fails to please. Quality and finish would be hard to surpass. Each in case, ⅝ inch straight point. Doz ..14.00

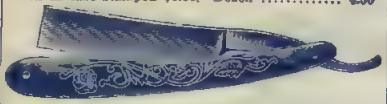
The Celebrated W. H. Morley & Son's Razors

No. 222. Razor, (W. H. Morley & Sons), full hollow ground, ⅝ in. blade, warranted best English steel, square point, file tang, finely polished blade, black rubber handle, embossed "Clover Brand;" each in leatherette case stamped $2.50; excellent in finish and value. Dozen 3.65

No. 1820. Razor, (W. H. Morley & Sons), full hollow ground, ⅝ in. blade, of best warranted English steel, square point blade, file tang, flat white bone handle, each in silver stamped leatherette case, marked $3.50 each. Dozen 4.25



No. 1348. Razor, (W. H. Morley & Sons), full hollow ground, ⅝ in. blade, warranted best English steel, highly polished, black round rubber handle. This is a staple style, excellent finish and good quality, each in case stamped $3.50. Dozen 4.50



No. 77. Razor, (W. H. Morley & Sons), full hollow ground, ⅝ in. blade, warranted best English steel, square point, highly polished, file tang; round black rubber handle, fancy scroll embossed on both sides; in quality and finish equal to higher price goods, each in case stamped $3 50. Dozen 4.75

No. 76. Razor, (W. H. Morley & Sons), full hollow ground, ⅝ in. blade, warranted best English steel, hollow point, file tang, finely polished; round celluloid white handle, inlaid with silver figures, representing Hunting scene, each in case stamped $3.50 Dozen 5.00

No. 61. Razor, (W. H. Morley & Sons), full hollow ground, ⅝ in. blade of best warranted English steel, high glazed polish, square point, file tang, fancy design, etched in gold with wording, "Barbers Friend," white celluloid handle, fancy embossed stag design in colors on picture background. Dozen 5.50

No. 64. Razor, (W. H. Morley & Sons), full hollow ground, ⅝ in. blade of best English steel, warranted, square point, file tang, high glazed polish, one side of blade etched in fire gilt with word, "Rattler;" white celluloid handle with fancy embossed peacock in brilliant natural colors on one side. Dozen.... 5.50

No. 51. Razor, (W. H. Morley & Sons), full hollow ground, ⅝ in. blade, square point, file tang, guaranteed best English steel, high glazed polish, one side of blade etched in gold, worded "Damascus;" white celluloid handle, embossed with stork design, finished in colors, very attractive. Dozen 5.50

No. 1251. Razor, (W. H. Morley & Sons), full hollow ground, ⅝ in. blade of best warranted English steel, square point, file tang, double shoulder, gold etched blade with word "Clover Brand," flat white grain fancy carved handle. Dozen 7.75

No. 1350. Razor, (W. H. Morley & Sons) full hollow ground, ⅝ in. blade of best warranted English steel with round point, file tang and double shoulder, high glazed polish, center of blade on one side etched in gold with wording, "Clover Brand," each in leatherette case stamped $3.50, fancy carved black handle. Dozen 8.00

No. 1287½. Razor, (W. H. Morley & Sons), full hollow ground, ⅝ in. blade of finest guaranteed English steel, smooth tang, hollow point, fancy swedged curve back, high glazed polish, steel and gold etched blade, round colored handle, embossed on one side with flowers and an Art Female figure in natural colors finest quality and finish in the line, each in case stamped $3.50. Dozen 8.00

THE SHURE WINNER PRICE LIST

Razor Assortments.

Especially Adapted for Merchants.

No. 1000. Assortment of medium and better grade razors, hollow ground, 1 carved black rubber handle, 1 clear horn, 1 plain black rubber, 1 plain white celluloid in glass top fine oak case, 8¾x7½x1¾ in., cloth lined removable tray with individual partitions for 6 razors and space enough under the tray for 6 more reserve stock razors, contains 6 styles of razors, 1 of each.
Per assortment complete 3.00

No. 1020. As above, with 12 razors, 2 of each style.
Complete 5.50

No. 1040. Assortment of Razors same case as No 1000, but comprises high grade goods, some of the best and world-renowned razor made, square and hollow point, full hollow ground, assorted handles, viz., 1 black carved rubber handle, 1 plain white celluloid black tipped, 1 black rubber silver and mother-of-pearl inlaid, 1 black silver inlaid with horse and rider, dog and bull, 1 white celluloid with carved raised stag with colored raised landscape, 1 white celluloid with raised carved peacock in natural colors, 6 styles, 1 of each.

No. 1060. As above, with 12 razors, 2 of each style.
Complete 7.50

Safety Razors, Good Staple Sellers

"Shrp Shavr Safety Razor." When price is taken into consideration this will appeal to the buyer as the biggest bargain on the page. In fact, considering what is really given in value, it truly is for the reason that it shaves just as finely as the highest price goods. It is, of course, not as elaborately finished as the more expensive article, but in intrinsic quality it could not be bettered. Made in the regulation "hoe shape" frame, round tube handle throughout nicely nickel plated and polished, one fine tempered steel blade with each holder. The quality of blade is unsurpassed and as a clean cutter could not be bettered. It is scientifically adjusted at the proper angle, each one carefully tested, gives a comfortable clean shave without pulling or scraping, best 25c proposition in the market. Each in box.
Dozen 2.25
Extra Shrp Shavr Blades.
Dozen ..... .40

No. 10. Ever Ready Safety Razor. For a low priced article this is the best of its kind ever placed on the market. In appearance and working it is identical with the famous "Gillette." It is a $5.00 value for ¼ the price; made of fine tool steel, heavy nickel plate and highly polished. Set consists of 1 frame and 12 critically perfect razor blades and a nickel silvered blade stropper, all in a box, with little booklet showing how simple it is to learn to shave with it; absolutely guaranteed
Each, complete ..... .70
Extra Razor Blades
Dozen ..... .43

No. 12. "Razac" Safety Razor. This is an article of a high standard quality, both in finish and quality. The frame and handle are triple silver plated, elaborately finished and is an excellent looker, none better at a much higher price offered anywhere; made in the regulation "hoe shape" with a scientific adjustment to the proper angle so as to give a cool, comfortable easy shave without scraping or injuring the cuticle. The adjustment of the blade is the simplest and most effective yet invented, very easily and quickly removed and replaced. In short, at the price we list it is is an ideal article which has no superior in its line. The blades are of a perfect even temper, keen cutting. The outfit consists of 1 holder and 12 blades assembled in a fine quality genuine leather case.
Per set 2.35

GILLETTE'S SAFETY RAZOR.

No. 275. Gillette's Safety Razor is the most perfect of any safety razor in the market, best adjustment, best quality and finest workmanship, no stroping or honing, you can shave in the dark, costs less than one cent per shave; the blades are double edged and patented concave ground, the holder is finely silver plated and polished, in a velvet lined leather case; 12 blades free with each holder.
Per outfit, complete 3.75

EXTRA BLADES.
No old blades are now exchanged, but new blades are sold at an extra low price, which is less than half of the former figure, 10 blades in a package
Per package . .40

THE EVER READY CORN KNIFE

The Ever Ready Corn Knife is good quality, made of the famous finely tempered "Ever Ready" steel, is designed especially for the use of paring of corns. In short, the quality and general finish of this knife is in thorough keeping with the reputation of the well known Ever Ready Safety Razor. It is an article that will find a ready sale in every store handling razors, etc.
Dozen . 4.25

RAZORS.

OUR RAZORS are **HAND FORGED** from the **VERY FINEST GRADE** of **ENGLISH RAZOR STEEL, EXTRA FINISH** and **HIGHEST QUALITY THROUGHOUT,** this insures a razor **SURPASSED BY NONE AND EQUALLED BY FEW** for both barbers' and private use. **FULLY WARRANTED.**

FULL SIZE CUTS.

Per dozen

No. 135. **C. V. C. Favorite,** ⅝ in. Blade, Full Crocus Finish, Fancy Back, Square Point, Full Hollow Ground, Gold Etching, **Fancy Black Handle** $48.00

One in a case, quarter dozen in a carton

Per dozen

No. 145. **Quigley's Best,** ⅝ in. Blade, Full Crocus Finish, Hard Rubber Tang, Hollow Ground, Gold Etching, **Fancy Black Handle** $42.00

No. 45. **Quigley's Best,** ⅝ in. Blade, Full Crocus Finish, Ivory Tang, Hollow Ground, Gold Etching, **Plain White Handle** 42.00

One in a case, quarter dozen in a carton

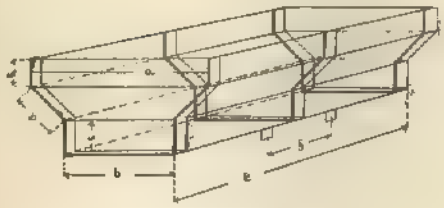
Per dozen

No. 065. **Ben Hur,** ⅝ in. Blade, Gouge Point, Hollow Ground, Full Crocus Finish, Gold Etching, **Fancy Ivoroid Handle** . $36.00

One in a case, half dozen in a carton

COAL MINE CARS

Built to order only, of either steel or wood, to special proportions and of any gauge of track, in capacities from 20 to 80 cubic feet. We furnish plain or chilled wheels, with or without self-oiling hubs.



Dimension Diagram

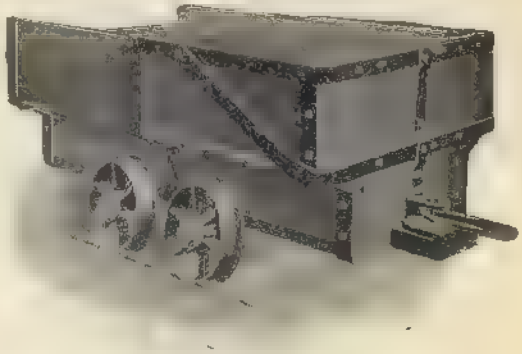


Illustration shows style H Car, Cast or Steel Bumper

INQUIRY BLANK

State number and style wanted and gauge of track.
Style and diameter of wheel.
Kind of axle, square or round.
Distance "F" (centers of axles).
When wheels are tight on axles give information as to inside or outside bearings, and state kind of oil boxes desired; also give length and diameter of journal.
Capacity in cubic feet level full (about 40 cubic feet to the ton).
Distance "a" "b" "c" "d" "e" in dimension diagram.
Distance "h" when extra vertical plank is used.
Distance between bumpers of four-bumper cars.
Height that car is wooded up in rear end above botttom plank.
Thickness of bottom and side planks.
Size of iron for front, center and rear binders or belts
Bumpers side or center and size of iron.
Size of rear cross binder.
Diameter of hole in end of draw-bar.

PRICES OF "S-D" WHITNEY MINING TRUCKS

Track Gauge: Size of Axle	Diameter of Wheel Inches	Trucks Including Axle Straps (Each Truck consists of 4 Self-Oiling Wheels, 2 Round Axles, 4 Felt Packed Boxings, 2 Axle Straps): 36 Inches	40 Inches	42 Inches	48 Inches	56½ Inches	Trucks Without Axle Straps (Each Truck consists of 4 Self-Oiling Wheels, 2 Round Axles, 4 Felt Packed Boxings. NOTE.—Axle Straps cannot be used with these boxings): 36 Inches	40 Inches	42 Inches	56½ Inches	Standard Tread of Wheels 8 Inches. Extra per Truck for ¼ Inch Wider Tread	Approximate Weight of Each Wheel	Approximate Weight of Each Truck 36 Inches, Gauge Including Straps	Approximate Weight Each Truck 36 Inches, Gauge Without Straps	Extra Weight per Truck for Each 1 Inch Extra Gauge
¾	9	$17 [illegible]	$22 [illegible]	$23 [illegible]	$28 [illegible]	$29 00	$27 10	$27 [illegible]	$27 62	$25 50	$0 [illegible]	35	255	250	1 37
¾	10	28.00	28 28	28 42	28.88	29 40	27 50	27 78	27 92	28 90	.40	40	285	280	1 37
¾	[illegible]	[illegible]	29 48	29 62	29 88	30 60	28 80	29 08	29 22	30 20	.44	45	305	300	1 37
2	11	32 50	32 88	33 04	33.58	34 30	31 60	31 96	32.14	33 40	.44	50	360	348	1 78
¾	12	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	29 40	29 68	[illegible]	30 80	.48	[illegible]	325	320	1 37
2	12	[illegible] 20	33 [illegible]	[illegible]	[illegible]	35 00	32 [illegible]	32 86	32 84	34 10	.48	[illegible]	[illegible]	358	1 78
2¼	12	37 [illegible]	[illegible] 44	37 60	38 [illegible]	36 [illegible]	36 40	36 81	[illegible] 6	38 66	.56	65	460	448	2 25
2	14	[illegible] 80	32 08	32 52	32 [illegible]	33 20	[illegible] 40	[illegible] 68	1 82	32 80	.54	54	355	350	1 37
2¼	14	[illegible] 40	35 [illegible]	35 54	36 [illegible]	36 [illegible]	34 1[illegible]	34 46	34 54	35 90	.54	65	420	408	1 78
2¼	14	[illegible]	39 54	40 6	40 [illegible]	41 [illegible]	38 4[illegible]	38 84	39 06	41 66	.61	75	500	488	2 25
2½	14	44 60	45 1[illegible]	[illegible]	[illegible] 28	47 1[illegible]	43 80	44 36	[illegible] 84	46 60	.94	90	600	586	2 78
2	15	[illegible]	[illegible] 8	[illegible] 92	[illegible] 3	33 [illegible]	[illegible]	32 28	32 [illegible]	33 40	.60	62	375	370	1 37
2	15	[illegible] 70	36 06	36 [illegible]	[illegible] 78	37 [illegible]	34 [illegible]	35 6	35 [illegible]	36 60	.60	70	440	428	1 78
2¼	15	40 00	40 44	40 6[illegible]	41 [illegible]	42 [illegible]	[illegible]	39 84	40 06	41 60	.74	80	520	508	2 25
2½	15	45 [illegible]	46 5[illegible]	[illegible] 84	47 38	48 [illegible]	45 10	45 [illegible]	45 94	47 90	1 04	95	620	606	2 78
2½	16	[illegible] 7[illegible]	[illegible] 8	38 04	38 58	39 [illegible]	36 [illegible]	36 90	37 14	38 40	.6[illegible]	80	480	468	1 78
2¼	16	41 90	42 [illegible]	42 56	43 22	43 [illegible]	4[illegible] 15	4[illegible] 56	41 81	43 35	.80	90	560	548	2 25
2½	6	47 [illegible]	48 [illegible]	48 44	49 28	50 40	46 70	47 26	47 [illegible]	49 50	1 [illegible]	105	660	648	2 78
2	18	41 20	40 [illegible]	41 74	41 [illegible]	42 [illegible]	[illegible]	39 66	39 [illegible]	4[illegible]	[illegible]	95	540	528	78
2¼	8	44 50	44 9	45 [illegible]	45 80	46 [illegible]	43 7	[illegible] 11	[illegible]	45 90	.88	105	650	608	2 25
2½	8	50 00	51 [illegible]	51 34	52.18	53 38	49 50	50 0[illegible]	50 [illegible]	52 30	1 30	120	720	708	2 78

In ordering, give width of car bottom, distance of axles on centers, and style of truck.

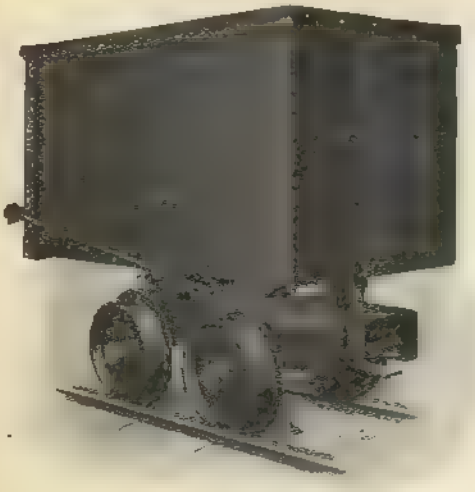


FIG. 301. AUTOMATIC MINE CARS

For All General Mine Purposes

Dumps on sides and rear end. Painted black, brown steel blue or red.

The platform is stamped from one piece of steel plate the fifth wheel or turntable being stamped in the same plate, making it a part of the platform

The beds are made of the best quality of steel plate The wheels are of cast iron, *chilled on face*, supplied with self-oiling, dust proof caps, and turn on axles. All other parts are of forged steel and iron. The door arrangement is arranged so that when car is released with spring foot arrangement in the rear, the door will not commence to open until the car is at an angle of about 15 degrees and when the car is dumped by placing car in loading position again, the door is automatically closed

Size No.	Capacity, Cubic Feet	Diam. of Wheels	Size of Square Axles	Size of Bed			Gauge of Steel, Inches			Extreme Outside Dimensions			Weight, Lbs.	Price
				Length	Width	Depth	Sides	Bottom	Door	Length	Width	Height		
1	12	10	1¼	44	24	21	No. 14	No. 12	No. 12	53	28	38	375	$60 [illegible]
2	12	10	1¼	44	24	21	" 12	" 12	" 12	53	28	38	[illegible]	70 [illegible]
3	12	10	1¼	44	24	21	" 12	" 10	" 12	53	28	40	425	75 [illegible]
4	16	12	1½	48	24	25	" 8	" 8	" 8	57	28	46	550	80 00
5	20	12	1½	48	30	25	" 8	" 8	" 8	57	34	46	650	90 00

False oak bottoms furnished at $2 00 net extra.

STANDARD STEEL ORE CARS

Dumps on Sides and Rear End

The beds are made of the best quality of steel plate. The wheels are of cast iron, chilled on face supplied with self-oiling, dust-proof caps and turn on axles. All other parts are of forged steel and iron.

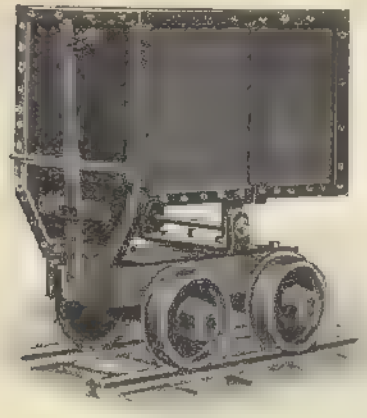
The platform is stamped from one piece of steel plate the fifth wheel or turntable being stamped in the same plate making it a part of the platform

All these cars are fitted with special mine car locks automatic in action, allowing the box to dump to an angle of 30 degrees before the door is released

We build these cars with box of any special size required and for track of any gauge but do not recommend them for greater capacity than 20 cubic feet, nor for track wider than 24 inches nor less than 18 inches. 18 inch is standard

Capacity based on one ton of ore to 16 cubic feet

No.	Capacity Cubic Feet	Size of Bed, Inches			Gauge of Steel, Inches			Axles, Square Inches	Diameter of Wheel, Inches	Weight, Lbs.	Price
		Length	Width	Depth	Sides, No.	Bottom, No.	Door, No.				
1	12	44	24	21	14	12	12	1¼	10	380	$56.00
2	12	44	24	21	12	12	12	1¼	10	420	60.00
3	12	44	24	21	12	10	12	1¼	10	475	65 00
4	16	48	24	25	8	8	8	1½	12	700	70.00
5	20	48	30	25	8	8	8	1½	12	760	75.00



SQUARE BOX, ROTARY DUMP STEEL ORE CARS

FOR SHAFT OR CAGE USE

The door or end gate is hinged at the top and a single lever operates with a catch to hold door, as well as to lock the car box to its truck frame. Round, cold drawn steel axles 1⅞-inch diam.

CAR No. 7

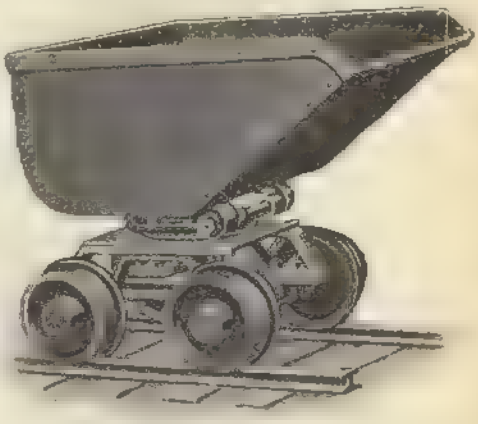
Capacity, 14½ cu. ft. Size of box, 40 x 26 x 26 in. deep. Sides and ends are of No. 10 and bottom of No. 8 steel. Extreme outside dimensions, 49 x 30 x 46 in. high. 12-in. chilled face wheels, 2¾ tread. 18-in. gauge. Weight, 900 lbs. Price.....$85.00

CAR No. 8

Capacity, 17 cu. ft. Size of box, 44 x 26 x 26 in. deep. Sides and end are of No. 10 and bottom of No. 8 steel. Extreme outside dimensions, 51 x 30 x 46 in. high. 12-in. chilled face wheels, 2¾ tread. Gauge, 18 in. Weight, 920 lbs. Price..... $90.00

CAR No. 9

Capacity, 20 cu. ft. Size of box, 48 x 28 x 26 in. deep. Sides and ends are of No. 10 and bottom of No. 8 steel. Extreme outside dimensions, 57 x 32 x 46 in. high, 12-in. chilled face wheels, 2¾ tread. Gauge, 18 in. Weight, 960 lbs.
Price.....$95.00



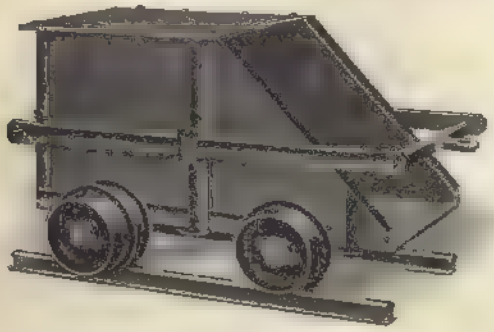
SCOOP BOX, ROTARY DUMP ORE CAR

FOR USE IN CAGES IN SHAFT MINING

A treadle catch releases box, which is swung on sides or ends by turning on the turntable and dumped by raising by handle on rear end.

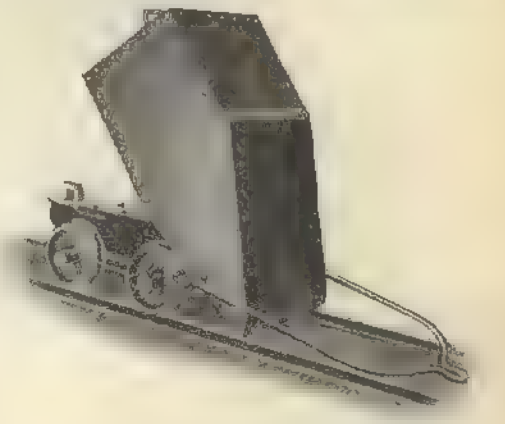
No	Cap. Feet	Gauge Track	Size of Box L.	W.	Depth	Ga. of Steel Sides	Bottom	Dia. of Wheels Inches	Wgt., Lbs.	List Price
12	8	1[illegible]	3[illegible]	26	17	No. 12	No. 12	10	482	$5[illegible]
13	18	1[illegible]	[illegible]	30	24	3/16 in.	¼ in.	12	840	8[illegible]
14	21	1[illegible]	5[illegible]	30	28	3/16 "	¼ "	12	875	8[illegible]
14A	28	[illegible]	[illegible]	38	28	3/16 "	¼ "	18	1,530	127.00

No. 61 STEEL MINE SKIP



Capacity—12 cu. ft. or 1,300 lbs. of ore. Length of box on top 28½ in., on bottom 48 in. Width, 24 in. Depth, 22 in. No. 8 steel. Center band 2½ x ½ in., angles at corners 2 x 2 x ¼ in., and at top and opening 1½ x 1½ x ¼ in. Reinforcing plate 6 x ¼ at open end under bottom and turned up on sides. Bail 2½ x ¾, draft bar 1½ in. sq. Axles 1¾ sq. Wheels 12 in. x 2¾ tread. Gauge 24 in.
Any size to order. Weight, 720 lbs.
Price $85.00

No. 61B COMBINED CAR AND SKIP



Box made of No. 12 steel. Length, 48 in. Width, 24 in. Depth, 20 in. Top band, 1½ x ⅜ in. Truck frame, 5½ x ¼ in. steel. Connecting angles 1¾ x 1¾ x 3/16 in. 10-inch chilled face wheels on 1½ in. axles. Handle ¾ round. Bail 1 in. round. Gauge of track 18 in. Weight, 525 lbs. Price.....$65.00

MINING CAGES

STANDARD MINING CAGE

Size of Platform About Feet	Capacity Pounds	Weight, Pounds	Price
4 x 4	6,000	850	$200.00
4 x 6	6,000	1,400	250.00

COLORADO LANDING CHAIRS

Working Parts of Forged Steel

Medium ..... Weight, 400 lbs..... .. ..Price, $ 80 00
Heavy..... " 500 " ..... " 100 00

MINING CAGE, LEADVILLE TYPE

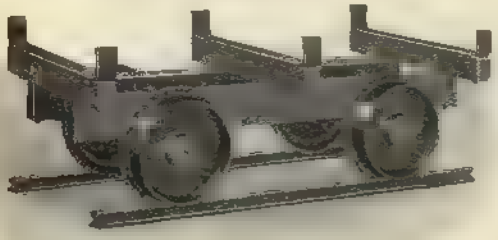
Built entirely of mild steel and Norway iron, all joints machined and fastened together with turned steel bolts, no rivets used. The highest type of cage for severest service.

Single-deck cage Weight, 1,400 lbs.
Price $350.00

Double-deck cage. Weight, 2,000 lbs.
Price $550.00

No. 44. PIPE CAR

Capacity, 5,000 Lbs.



Platform, 6 feet long by 3 feet wide. Side sills, 2¼x8 inches. Cross sills, 2¼x4 inches.

Solid web chilled face wheels, 16 inches diameter, tread 3⅝ inches.

Steel axles, 2¼ inches round, turning in cast boxing, with babbitted bearings.

Three iron cross bars on top, as shown in cut, turned up at sides of car, to hold pipe in place.

Gauge of track 24 inches.

Weight, 540 lbs. Price $65.00

No. 79. CLAY CAR

Capacity, 30 Cubic Feet

Box: Length, 75 inches; width, 79 inches; depth, 18 inches; of 1½ inch oak. End dump gate, with side wings of No. 12 galvanized steel, and adjustable chains. Top straps, 1½x⅛ inches. 1 inch pipe handle on end.

Truck-frame made with two side-sills, 7x2¼ inches, and six cross-sills, 3x2 inches.

Wheels outside of frame.

Solid plate chilled face wheels, 12 inches diameter, 2½ inches face, with oil cups.

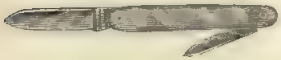
Steel axles, 1¼ inches square.

POCKET KNIVES.

WISMAR CUTLERY CO. EXCELLENT QUALITY.

No. **6538C**, 2 Blades, Cocobolo Handle, Brass Lined, Double Capped, Shield, Spear Blade, Half Polished, Per doz., $3 00

No. **6402 R**, 2 Blades, Redwood Handle, Brass Lined, Double Bolster, Shield, Spear Blade, Glazed, Per dozen, $3 00



No. **6624**, 2 Blades, German Silver Handle, Spear Blade, Full Polished, - - Per dozen, $2 50

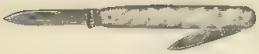
No. **6627 E**, 2 Blades, Ebony Handle, Brass Lined, Cap Bolster, Shield, Pointed Blade, Glazed, Per dozen, $3 50

No. **6703**, 2 Blades, German Silver Handle, Spear Blade, Polished, - - Per dozen, $3 00

No. **6704**, 2 Blades, German Silver Handle, Spear Blade, Polished, - - Per dozen, $3 00

No. **9048 GS**, 3 Blades, German Silver Handle, Cork Screw, Tobacco Blade, Cigar Cutter, Per dozen, $9 00

No. **6651**, 2 Blades, Pearl Handle, Brass Lined, Double Bolster, Spear Blade, Glazed, Ladies' Knife, Per dozen, $3 00



No. **6677**, 2 Blades, Pearl Handle, Brass Lined, Plain, Spear Blade, Glazed, - - Per dozen, $9 00

No. **6707**, 2 Blades, Pearl Handle, Brass Lined, Spear Blade, Polished, German Silver Tipped, Per dozen, $9 00

No. **6713**, 2 Blades, Pearl Handle, Brass Lined, Cap and Bolster, Pointed Blade, Polished, - Per dozen, $9 00

MORLEY-MURPHY HARDWARE CO.

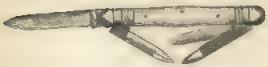
POCKET KNIVES.

WISMAR CUTLERY CO. EXCELLENT QUALITY.

No. 7266 P.

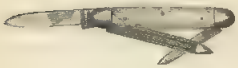
No. **7266 P**, 3 Blades, Pearl Handle, Brass Lined, Double Bolster, Spear Blade, Polished, - Per dozen, $9 00

8213 P, 3 Blades and File, Pearl Handle, Brass Lined, Double Bolster, Spear Blade, Polished, Per dozen, 9 00

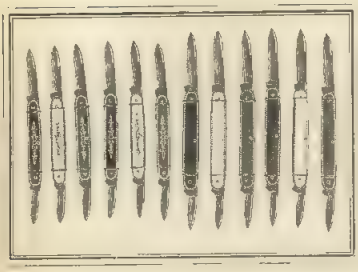


No. **8223 P**, 3 Blades and File, Pearl Handle, Brass Lined, Double Bolster, Spear Blade, Polished, - Per dozen, $9 00

No. **8212 P**, 3 Blades and File, Pearl Handle, Brass Lined, Double Bolster and Shield, Spear Blade, Polished, Per dozen, $9 00



No. **7280 P**, 3 Blades, Long File Blade, Pearl Handle, Brass Lined, Double Bolster, Spear Blade, Polished, Per dozen, $9 00



No. **6622 / 23**, Pen Knives, 2 Blades, Iron Lined, Per doz., $1 80

Fancy Celluloid Handle, Black, White and Red Handle.

One dozen on a card.

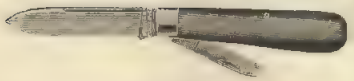
CORN RAZORS.

No. **850**, Corn Razor, Black Rubber Handle, Per dozen, $12 00

MORLEY-MURPHY HARDWARE COMPANY, GREEN BAY, WIS.

POCKET KNIVES.

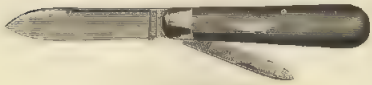
WISMAR CUTLERY CO. EXCELLENT QUALITY.



No. 5737.

No **5737E**, 2 Blades, Ebony Handle, Iron Lined, Single Bolster, Spear Blade, Glazed, Per dozen, $3 00

" **5737R**, 2 Blades, Red Wood Handle, Iron Lined, Single Bolster, Spear Blade. Glazed, - - Per dozen, 3 00



No. 5305E, R, W B

No. **5305E**, 2 Blades, Ebony Handle, Iron Lined, Single Bolster, Shield, Spear Blade, Glazed, - - Per dozen, $4 00

" **5305R**, 2 Blades Redwood Handle, Iron Lined, Single Bolster, Shield, Spear Blade, Glazed, - Per dozen, 4 00

" **5305W. B.**, 2 Blades, White Bone Handle, Iron Lined, Single Bolster, Shield, Spear Blade, Glazed, - Per dozen, 4 00

No. **5495E**, 2 Blades, Ebony Handle, Brass Lined, Single Rat Tail Bolster, Spear Blade, Glazed, - - Per dozen, $4 00

No. 5781E, R, W B.

No. **5781E**, 2 Blades, Ebony Handle, Iron Lined, Single Bolster, Shield, Spear Blade, Glazed, Chain Knife, - Per dozen, $3 50

" **5781R**, 2 Blades, Red Wood Handle, Iron Lined, Single Bolster, Shield, Spear Blade, Glazed, Chain Knife, Per dozen, 3 50

" **5781W. B.**, 2 Blades, White Bone Handle, Iron Lined, Single Bolster, Shield, Spear Blade, Glazed, Chain Knife. Per dozen, 3 50

" **5781MST**, 2 Blades, Imitation Stag Handle, Iron Lined, Single Bolster, Shield, Spear Blade, Glazed, Chain Knife, Per dozen, 3 50

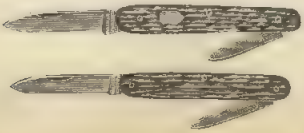
No 5794E Clip.

No. **5794E** Clip, 2 Blades, Ebony Handle, Brass, Lined, Single Bolster, Shield, Clip Blade, Half Polished, - Per dozen, $8 00

" **5794E** Spear, 2 Blades, Ebony Handle, Brass Lined, Single Bolster, Shield, Spear Blade, Half Polished, - Per dozen, 8 00

" **5794MST** Clip, 2 Blades, Stag Handle, Brass Lined, Single Bolster, Shield, Clip Blade, Half Polished, - Per dozen, 8 00

" **5794MST** Spear, 2 Blades, Stag Handle, Brass Lined, Single Bolster, Shield, Clip Blade, Half Polished, - Per dozen, 8 00



No **6749**, 2 Blades, Stag Handle, Brass Lined, Plain, Spear Blade, Polished and Glazed, Per dozen, 2 00

No. **6714**, 2 Blades, Stag Handle, Iron Lined, Plain, Spear Blade, Polished, Per dozen, 3 00

MORLEY-MURPHY HARDWARE COMPANY, GREEN BAY, WIS

POCKET KNIVES.

WISMAR CUTLERY CO. EXCELLENT QUALITY.

No. **6698P**, 2 Blades, Pearl Handle, Iron Lined, German Silver Double Bolster, Spear Blade, Polished, Per dozen, $9 00

No. **6699P**, 2 Blades, Pearl Handle, Iron Lined, Double Bolster, Spear Blade, Polished, - Per dozen, $9 00

No. 6729.

No. **6729**, 2 Blades, Pearl Handle, Brass Lined, Double Bolster, Spear Blade, Glazed, - Per dozen, $9 00

" **6724**, 2 Blades, Pearl Handle, Brass Lined, Double Bolster, Spear Blade, Glazed, - Per dozen, 9 00

No. 7288.

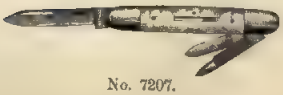
No. **7288P**, 3 Blades, Pearl Handle, Brass Lined, Double Bolster, Spear Blade, Polished, Per dozen, $9 00

" **7289P**, 3 Blades, File, Pearl Handle, Iron Lined, Double Bolster, Spear Blade, Polished, - Per dozen, 9 00

No. **7290P**, 3 Blades, File, Pearl Handle, Iron Lined, Double Bolster, Spear Blade Polished, - Per dozen, $9 00

No. **7111P**, 3 Blades, File, Pearl Handle, Brass Lined, Double Bolter, Spear Blade, Polished, - Per dozen, $9 00

No. **7224P**, 3 Blades, File, Pearl Handle, Brass Lined, Double Bolster, Shield, Spear Blade, Polished, Per dozen, $9 00



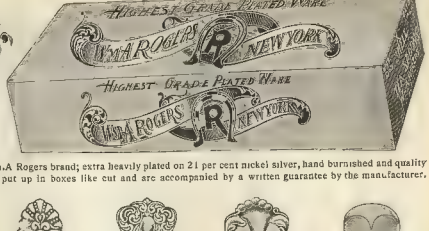
No. 7207.

No. **7207P**, 3 Blades, File, Pearl Handle, Brass Lined, Double Bolster, Shield, Spear Blade, Polished, Per dozen, $9 00

" **8226P**, 4 Blades, File, Pearl Handle, Brass Lined, Double Bolster, Shield, Spear Blade, Polished, Per dozen, 9 00

MORLEY-MURPHY HARDWARE COMPANY, GREEN BAY, WIS.

Wm. A. Rogers.



Celebrated Silver Plated Flatware.

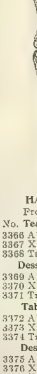
Wm. A. Rogers are one of the oldest established makers. The quality of their product is beyond question.

PRICES PER DOZEN.

The goods illustrated on this page are the genuine Wm.A Rogers brand; extra heavily plated on 21 per cent nickel silver, hand burnished and quality guaranteed The genuine Wm. A. Rogers goods are put up in boxes like cut and are accompanied by a written guarantee by the manufacturer.

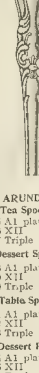
GRENOBLE
French gray.

No. Tea Spoons.	Doz.
3337 A1 plate	$3 80
3338 XII "	4 40
3339 Triple "	5 20
Dessert Spoons	
3340 A1 plate	$6 80
3341 XII "	7 60
3342 Triple "	8 80
Table Spoons	
3343 A1 plate	$7 60
3344 XII "	8 80
3345 Triple "	10 40
Dessert Forks	
3346 A1 plate	$6 80
3347 XII "	7 60
3348 Triple "	8 80
Medium Forks	
3349 A1 plate	$7 60
3350 XII "	8 80
3351 Triple "	10 40
Twist Butters	
3352 A1 plate	$8 40
3353 Triple "	11 60
Sugar Shells	
3354 A1 plate	$7 20
3355 Triple "	8 80
Ladles	
3356 A1 Cream	$10 80
3357 " Gravy	14 40
3358 " Oyster	31 20
3359 " Med'm	38 40
3360 " Punch	57 60
Knives	
3361 A1 Pie	24 00
Spoons	
3362 A1 Coffee	$3 76
3363 " Or'nge	4 80
3364 " Berry	19 20
3365 " " Gift	26 40



HANOVER
French gray.

No. Tea Spoons.	Doz
3366 A1 plate	$3 80
3367 XII "	4 40
3368 Triple "	5 20
Dessert Spoons	
3369 A1 plate	$6 80
3370 XII "	7 60
3371 Triple "	8 80
Table Spoons	
3372 A1 plate	$7 60
3373 XII "	8 80
3374 Triple "	10 40
Dessert Forks	
3375 A1 plate	$6 80
3376 XII "	7 60
3377 Triple "	8 80
Medium Forks	
3378 A1 plate	$7 60
3379 XII "	8 80
3380 Triple "	10 40
Twist Butters	
3381 A1 plate	$8 40
3382 Triple "	11 60
Sugar Shells	
3383 A1 plate	$7 20
3384 Triple "	8 80
Ladles	
3385 A1 Cream	$10 80
3386 " Gravy	14 40
3387 " Oyster	31 20
3388 " Med'm	38 40
3389 " Punch	57 60
Knives	
3390 A1 Pie	$24 00
Spoons	
3391 A1 Coffee	$3 76
3392 " Or'nge	4 80
3393 " Berry	19 20
3394 " " Gift	26 40

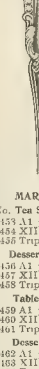


ARUNDEL

No Tea Spoons.	Doz
3395 A1 plate	$3 80
3396 XII "	4 40
3397 Triple "	5 20
Dessert Spoons	
3398 A1 plate	$6 80
3399 XII "	7 60
3400 Triple "	8 80
Table Spoons	
3401 A1 plate	$ 7 60
3402 XII "	8 80
3403 Triple "	10 40
Dessert Forks	
3404 A1 plate	$6 80
3405 XII "	7 60
3406 Triple "	8 80
Medium Forks	
3407 A1 plate	$ 7 60
3408 XII "	8 80
3409 Triple "	10 40
Twist Butters	
3410 A1 plate	$ 8 40
3411 Triple "	11 60
Sugar Shells	
3412 A1 plate	$7 20
3413 Triple "	8 80
Ladles	
3414 A1 Cream	$10 80
3415 " Gravy	14 40
3416 " Oyster	31 20
3417 " Med m	38 40
3418 " Punch	57 60
Knives	
3419 A1 Pie	$24 00
Spoons.	
3420 A1 Coffee	$ 3 76
3421 " Or'nge	4 80
3422 " Berry	19 20
3423 " " Gift	26 40

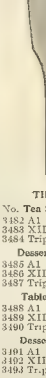
WARWICK

No Tea Spoons.	Doz.
3424 A1 plate	$3 80
3425 XII "	4 40
3426 Triple "	5 20
Dessert Spoons	
3427 A1 plate	$6 80
3428 XII "	7 60
3429 Triple "	8 80
Table Spoons	
3430 A1 plate	$ 7 60
3431 XII "	8 80
3432 Triple "	10 40
Dessert Forks	
3433 A1 plate	$6 80
3434 XII "	7 60
3435 Triple "	8 80
Medium Forks	
3436 A1 plate	$7 60
3437 XII "	8 80
3438 Triple "	10 40
Twist Butters	
3439 A1 plate	$8 40
3440 Triple "	11 60
Sugar Shells	
3441 A1 plate	$7 20
3442 Triple "	8 80
Ladles	
3443 A1 Cream	$10 80
3444 " Gravy	14 40
3445 " Oyster	31 20
3446 " Med m	38 40
3447 " Punch	57 60
Knives	
3448 A1 Pie	$24 00
Spoons.	
3449 A1 Coffee	$3 76
3450 " Or nge	4 80
3451 " Berry	19 20
3452 " " Gift	26 40



MARCELLA

No. Tea Spoons.	Doz
3453 A1 plate	$3 80
3454 XII "	4 40
3455 Triple "	5 20
Dessert Spoons	
3456 A1 plate	$6 80
3457 XII "	7 60
3458 Triple "	8 80
Table Spoons	
3459 A1 plate	$ 7 60
3460 XII "	8 80
3461 Triple "	10 40
Dessert Forks	
3462 A1 plate	$6 80
3463 XII "	7 60
3464 Triple "	8 80
Medium Forks	
3465 A1 plate	$7 60
3466 XII "	8 80
3467 Triple "	10 40
Twist Butters	
3468 A1 plate	$ 8 40
3469 Triple "	11 60
Sugar Shells.	
3470 A1 plate	$7 20
3471 Triple "	8 80
Ladles	
3472 A1 Cream	$10 80
3473 " Gravy	14 40
3474 " Oyster	31 20
3475 " Med'm	38 40
3476 " Punch	57 60
Knives	
3477 A1 Pie	$24 00
Spoons	
3478 A1 Coffee	$ 3 76
3479 " Or'nge	4 80
3480 " Berry	19 20
3481 " " Gift	26 40



TIPPED

No. Tea Spoons.	Doz.
3482 A1 plate	$3 40
3483 XII "	4 00
3484 Triple "	4 80
Dessert Spoons.	
3485 A1 plate	$6 00
3486 XII "	6 80
3487 Triple "	8 00
Table Spoons.	
3488 A1 plate	$6 80
3489 XII "	8 00
3490 Triple "	9 60
Dessert Forks	
3491 A1 plate	$6 00
3492 XII "	6 80
3493 Triple "	8 00
Medium Forks	
3494 A1 plate	$6 80
3495 XII "	8 00
3496 Triple "	9 60
Twist Butters	
3497 A1 plate	$ 8 00
3498 Triple "	11 20
Sugar Shells	
3499 A1 plate	$6 40
3500 Triple "	8 00

Fancy pieces not made in tipped pattern.

The Old Original and Genuine Wm. Rogers & Son Flatware

Unsurpassed in plate workmanship and beauty of design. Plated with full weight pure silver on best quality nickel silver.

On the market for over 40 years. Every package carries a guarantee.

WM. ROGERS & SON. TRADE MARK

Manufactured by The Wm. Rogers Mfg. Co., Hartford, Conn.

PRICES PER DOZEN

MAYFLOWER

Tea Spoons
3501 A1 plate..$3 42
3502 Triple " .. 4 68

Dessert Spoons
3503 A1 plate..$6 12
3504 Triple " .. 7 92

Table Spoons
3505 A1 plate $6 84
3506 Triple " .. 9 36

Dessert Forks
3507 A1 plate $6 12
3508 Triple " .. 7 92

Medium Forks
3509 A1 plate..$6 84
3510 Triple " . 9 36

Twist Butters
3511 A1 plate. $7 56
3512 Triple " . 10 44

Sugar Shells
3513 A1 plate..$6 48
3514 Triple " .. 7 92

Ladies
3515 A1 Cream . 9 72
3516 " Gravy 12 96
3517 " Oyster 28 08
3518 " Medium 34 56
3519 " Soup.. 36 72

Knives
3520 A1 Pie . 21 60
3521 " Cake . 17 28

Spoons
3522 A1 Coffee. 8 39
3523 " Orange 4 32
3524 " Berry 17 28
3525 " Berry Gilt 23 76

ARGYLE PATTERN

No. Tea Spoons
3526 A1 plate. $3 42
3527 Triple " .. 4 68

Dessert Spoons
3528 A1 plate..$6 12
3529 Triple " .. 7 92

Table Spoons
3530 A1 plate .$6 84
3531 Triple " .. 9 36

Dessert Forks
3532 A1 plate $6 12
3533 Triple " . 7 92

Medium Forks
3534 A1 plate..$6 84
3535 Triple " .. 9 36

Twist Butters
3536 A1 plate. $7 56
3537 Triple " ..10 44

Sugar Shells
3538 A1 plate.. 6 48
3539 Triple " .$7 92

Ladies
3540 A1 Cream.. $9 72
3541 " Gravy 12 96
3542 " Oyster .28 08
3543 " Medium 34 56
3544 " Soup 36 72

Knives
3545 A1 Pie $21 60
3546 " Cake . 17 28

Spoons
3547 A1 Coffee $8 39
3548 " Orange 4 32
3549 " Berry. 17 28
3550 " Berry Gilt 23 76

TIPPED

No. Tea Spoons
3551 A1 plate..$3 06
3552 Triple " . 4 32

Dessert Spoons
3553 A1 plate..$5 40
3554 Triple " .. 7 20

Table Spoons
3555 A1 plate .$6 12
3556 Triple " . 8 64

Dessert Forks
3557 A1 plate. $5 40
3558 Triple " .. 7 20

Medium Forks
3559 A1 plate..$6 12
3560 Triple " . 8 64

Twist Butters
3561 A1 plate. $7 20
3562 Triple " . 10 08

Sugar Shells
3563 A1 plate..$5 76
3564 Triple " .. 7 20

Ladies
3565 A1 Cream. $7 56
3566 " Gravy 10 80
3567 " Oyster. 23 76
3568 " Medium 30 24
3569 " Soup ..32 40

Knives
—— A1 Pie . . not made
—— " Cake " "

Spoons
—— A1 Coffee. not made
—— " Orange "
—— " Berry. "
—— " Berry Gilt. "

SHELL

No Tea Spoons
3570 A1 plate $3 06
3571 Triple " .. 4 32

Dessert Spoons
3572 A1 plate..$5 40
3573 Triple " .. 7 20

Table Spoons
3574 A1 plate..$6 12
3575 Triple " . 8 64

Dessert Forks
3576 A1 plate..$5 40
3577 Triple " .. 7 20

Medium Forks
3578 A1 plate..$6 12
3579 Triple " . 8 64

Twist Butters
3580 A1 plate..$7 20
3581 Triple " ..10 08

Sugar Shells
3582 A1 plate..$5 76
3583 Triple " .. 7 20

Ladies
3584 A1 Cream $7 56
3585 " Gravy. 10 80
3586 " Oyster 23 76
3587 " Medium 30 24
3588 " Soup ..32 40

Knives
A1 Pie not made
" Cake "

Spoons
—— A1 Coffee. not made
—— " Orange "
—— " Berry. "
—— " Berry G'lt. "

RALEIGH

No. Tea Spoons
3589 A1 plate..$3 42
3590 Triple " .. 4 68

Dessert Spoons
3591 A1 plate..$6 12
3592 Triple " .. 7 92

Table Spoons
3593 A1 plate..$6 84
3594 Triple " .. 9 36

Dessert Forks
3595 A1 plate. $6 12
3596 Triple " .. 7 92

Medium Forks
3597 A1 plate. $6 84
3598 Triple " .. 9 36

Twist Butters
3599 A1 plate..$7 56
3600 Triple " ..10 44

Sugar Shells
3601 A1 plate. $6 48
3602 Triple " .. 7 92

Ladies
3603 A1 Cream $9 72
3604 " Gravy .12 96
3605 " Oyster .28 08
3606 " Medium 34 56
3607 " Soup ..36 72

Knives
3608 A1 Pie $21 60
3609 " Cake. 17 28

Spoons
3610 A1 Coffee .$3 39
3611 " Orange 4 32
3612 " Berry . 17 28
3613 " Berry Gilt 23 76

ALHAMBRA

No. Tea Spoons
3614 A1 plate..$3 42
3615 Triple " . 4 68

Dessert Spoons
3616 A1 plate $6 12
3617 Triple " .. 7 92

Table Spoons
3618 A1 plate .$6 84
3619 Triple " . 9 36

Dessert Forks
3620 A1 plate..$6 12
3621 Triple " . 7 92

Medium Forks
3622 A1 plate $6 84
3623 Triple " .. 9 36

Twist Butters
3624 A1 plate $7 56
3625 Triple " . 10 44

Sugar Shells
3626 A1 plate .$6 48
3627 Triple " .. 7 92

Ladies
3628 A1 Cream..$9 72
3629 " Gravy..12 96
3630 " Oyster 28 08
3631 " Medium 34 56
3632 " Soup...36.72

Knives
3633 A1 Pie . $21 60
3634 " Cake. 17 28

Spoons
3635 A1 Coffee $8 39
3636 " Orange 4 32
3637 " Berry . 17 28
3638 " Berry Gilt . 23 76

WM. ROGERS & SON.
TRADE MARK

Fine Silver Plated Flatware.

These goods are plated with full standard plate on high grade nickel silver base. Prices per dozen

FLORIDA PATTERN
Made in A1 plate only.

Tea Spoons

No.		Per doz.
3639	A1 plate	$2 36

Dessert Spoons

3640	A1 plate	$4 20

Table Spoons

3641	A1 plate	$4 73

Dessert Forks

3642	A1 plate	$4 20

Medium Forks

3643	A1 plate	$4 73

Butter Knives

3644	A1 plate	$4 73

Sugar Shells

3645	A1 plate	$4 20

Coffee Spoons

3646	A1 plate	$4 23
3647	" gilt	5 30

Oyster Forks

3648	A1 plate	$4 30

Ladles

3649	A1 Cream	$ 9 35
3650	" " gilt	13 34
3651	" Gravy	12 41
3652	" " gilt	18 46
3653	" Oyster	26 68
3654	" " gilt	33 52
3655	" Medium	32 83
3656	" " gilt	41 04

Berry Spoons

3657	A1 plate	$16 42
3658	" gilt	22 60

Cold Meat Forks

3659	A1 plate	10 26
3660	" gilt	14 36

OXFORD PATTERN
Made in A1 plate only.

Tea Spoons

No.		Per doz
3661	A1 plate	$2 36

Dessert Spoons

3662	A1 plate	$4 20

Table Spoons

3663	A1 plate	$4 73

Dessert Forks

3664	A1 plate	$4 20

Medium Forks

3665	A1 plate	$4 73

Butter Knives

3666	A1 plate	$4 73

Sugar Shells

3667	A1 plate	$4 20

Coffee Spoons

3668	A1 plate	$3 23
3669	" gilt	5 30

Oyster Forks

3670	A1 plate	$4 30

Ladles

3671	A1 Cream	$ 9 35
3672	" gilt	13 34
3673	" Gravy	12 41
3674	" gilt	18 46
3675	" Oyster	26 68
3676	" " gilt	33 52
3677	" Medium	32 83
3678	" gilt	41 04

Berry Spoons

3679	A1 plate	$16 42
3680	" gilt	22 60

Cold Meat Forks

3681	A1 plate	$10 26
3682	" gilt	14 36

Jelly Servers

3683	A1 plate	$12 31

FLOWER PATTERN
FRENCH GRAY
Made in A1 plate only.

Tea Spoons.

No		Per doz
3684	A1 plate	$2 50

Dessert Spoons

3685	A1 plate	$4 50

Table Spoons

3686	A1 plate	$5 00

Dessert Forks

3687	A1 plate	$4 50

Medium Forks

3688	A1 plate	$5 00

Butter Knives

3689	A1 plate	$5 00

Sugar Shells

3690	A1 plate	$4 50

Coffee Spoons

3691	A1 plate	$3 23
3692	" gilt	5 30

Oyster Forks

3693	A1 plate	$4 30

Ladles

3694	A1 Cream	$ 9 35
3695	" gilt	13 34
3696	" Gravy	12 41
3697	" " gilt	18 46
3698	" Oyster	26 68
3699	" " gilt	33 52
3700	" Medium	32 83
3701	" gilt	41 04

Berry Spoons

3702	A1 plate	$16 42
3703	" gilt	22 60

Cold Meat Forks

3704	A1 plate	$10 26
3705	" gilt	14 36

Jelly Servers

3706	A1 plate	$12 31

SHELL PATTERN
Made in A1 plate only.

Tea Spoons

No.		Per doz.
3707	A1 plate	$2 36

Dessert Spoons

3708	A1 plate	$4 20

Table Spoons

3709	A1 plate	$4 73

Dessert Forks

3710	A1 plate	$4 20

Medium Forks

3711	A1 plate	$4 73

Butter Knives

3712	A1 plate	$4 72

Sugar Shells

3713	A1 plate	$4 20

TIPPED PATTERN
Made in A1 plate only.

Tea Spoons

No.		Per doz
3714	A1 plate	$2 36

Dessert Spoons

3715	A1 plate	$4 20

Table Spoons

3716	A1 plate	$4 73

Medium Forks

3717	A1 plate	$4 73

Dessert Forks

3718	A1 plate	$4 20

Butter Knives

3719	A1 plate	$4 72

Sugar Shells

3720	A1 plate	$4 20

Fancy Pieces not made in shell pattern.

Fancy Pieces not made in tipped pattern.

Wm. A. Rogers High Grade Silver Plated Ware, Light Weight Patterns

CARLTON SHELL { Stamped Wm. A. Rogers A1

Plated on 21 per cent Nickel Silver Base

TIPPED, ST. ELMO, LINDEN, ARDSLEY { Stamped Rogers 1881.

SHELL

A1 and Triple only

No. Tea Spoons Doz.
3721 A1 plate $2 25
3722 Triple " 4 00

Dessert Spoons

3723 A1 plate $1 00
3724 Triple " 6 65

Table Spoons

3725 A1 plate $4 50
3726 Triple " 8 00

Dessert Forks

3727 A1 plate $4 00
3728 Triple " 6 50

Medium Forks

3729 A1 plate $4 50
3730 Triple " 8 00

Twist Butters

3731 A1 plate $4 50

Sugar Shells

3732 A1 plate $4 00

Coffee Spoons

3733 A1 plate $3 00

Oystor Forks

3734 A1 plate $4 00

Gravy Ladles

3735 A1 plate $12 00

Soup Ladles

3736 A1 plate $32 00

TIPPED

Made in A1 only

No. Tea Spoons Doz.
3737 A1 plate $2 25

Dessert Spoons

3738 A1 plate $1 00

Table Spoons

3739 A1 plate $4 50

Medium Forks

3740 A1 plate $4 50

Dessert Forks

3741 A1 plate $4 00

Butter Knives

3742 A1 plate $4 50

Sugar Shells

3743 A1 plate $4 00
3744 " gilt 7 00

Fancy Pieces not made in Tipped Pattern

CARLTON

Made in A1 only

No Tea Spoons Doz.
3745 A1 plate $2 25

Dessert Spoons

3746 A1 plate $4 00

Table Spoons

3747 A1 plate $4 50

Medium Forks

3748 A1 plate $4 50

Dessert Forks

3749 A1 plate $4 00

Butter Knives

3750 A1 plate $4 50

Sugar Shells

3751 A1 plate $4 00
3752 " " gilt 7 00

Spoons

3753 A1 Coffee $3 00
3754 " " gilt 5 40

Forks

3755 A1 Oyster $4 00
3756 " " gilt 7 20

Ladles

3757 A1 Cream $9 00
3758 " " gilt 14 00
3759 " Gravy 12 00
3760 " " gilt 18 00
3761 " Med'm 32 00
3762 " " gilt 40 00

Pickle Forks

3763 A1 plate $11 50

Knives

3764 A1 Pie $20 00
3765 " " gilt 26 00

Spoons

3766 A1 Berry $16 00
3767 " " gilt 22 00
3768 " Or'ngc 4 00
3769 " " gilt 6 70

LINDEN

Made in A1 only

No Tea Spoons Doz.
3770 A1 plate $2 25

Dessert Spoons

3771 A1 plate $4 00

Table Spoons

3772 A1 plate $4 50

Medium Forks

3773 A1 plate $4 50

Dessert Forks

3774 A1 plate $4 00

Butter Knives

3775 A1 plate $4 50

Sugar Shells

3776 A1 plate $4 00
3777 " " gilt 7 00

Spoons

3778 A1 Coffee $3 00
3779 " " gilt 5 40

Forks

3780 A1 Oyster $4 00
3781 " " gilt 7 20

Ladles

3782 A1 Cream $9 00
3783 " " gilt 14 00
3784 " Gravy 12 00
3785 " " gilt 18 00
3786 " Med'm 32 00
3787 " " gilt 40 00

Pickle Forks

3788 A1 plate $11 50

Knives

3789 A1 Pie $20 00
3790 " " gilt 26 00

Spoons

3791 A1 Berry $16 00
3792 " " gilt 22 00
3793 " Or'ngc 4 00
3794 " " gilt 6 70

ST. ELMO

Made in A1 only

No. Tea Spoons. Doz.
3795 A1 plate $2 25

Dessert Spoons

3796 A1 plate $4 00

Table Spoons

3797 A1 plate $4 50

Medium Forks

3798 A1 plate $4 50

Dessert Forks

3799 A1 plate $4 00

Butter Knives

3800 A1 plate $4 50

Sugar Shells

3801 A1 plate $4 00
3802 " " gilt 7 00

Spoons

3803 A1 Coffee $3 00
3804 " " gilt 5 40

Forks

3805 A1 Oyster $4 00
3806 " " gilt 7 20

Ladles

3807 A1 Cream $9 00
3808 " " gilt 14 00
3809 " Gravy 12 00
3810 " " gilt 18 00
3811 " Med'm 32 00
3812 " " gilt 40 00

Pickle Forks

3813 A1 plate $11 50

Knives

3814 A1 Pie $20 00
3815 " " gilt 26 00

Spoons

3816 A1 Berry $16 00
3817 " " gilt 22 00
3818 " Or'ngc 4 00
3819 " " gilt 6 70

ARDSLEY

Made in A1 only

No. Tea Spoons. Doz.
3820 A1 plate $2 25

Dessert Spoons

3821 A1 plate $4 00

Table Spoons

3822 A1 plate $4 50

Medium Forks

3823 A1 plate $4 50

Dessert Forks

3824 A1 plate $4 00

Butter Knives

3825 A1 plate $4 50

Sugar Shells

3826 A1 plate $4 00
3827 " " gilt 7 00

Spoons

3828 A1 Coffee $3 00
3829 " " gilt 5 40

Forks

3830 A1 Oyster $4 00
3831 " " gilt 7 20

Ladles

3832 A1 Cream $9 00
3833 " " gilt 14 00
3834 " Gravy 12 00
3835 " " gilt 18 00
3836 " Med'm 32 00
3837 " " gilt 40 00

Pickle Forks

3838 A1 plate $11 50

Knives

3839 A1 Pie $20 00
3840 " " gilt 26 00

Spoons

3841 A1 Berry 16 00
3842 " " gilt 22 00
3843 " Or'ngc 4 00
3844 " " gilt 6 70

ELECTRIC PUSH BUTTONS.

HALF SIZE CUTS.

LOWELL DESIGN.

No. WL31.

NAVARRO DESIGN.

No. CN31.

PASCO DESIGN.

No. FP31.

WESTFIELD DESIGN.

No. WW31.

		Per dozen
No. WL31.	No. 7 Finish, Antique Copper, Real Bronze Metal, 7 ½ x 2 ¼ in	$10.80
No. CN31.	No. 98 Finish, Sand Blast Antique Brass, Real Bronze Metal, 5 ⅛ x 2 in.	14.40
No. FP31.	No. 198 Finish, Sand Blast Antique Brass, Iron Metal, 5 ⅝ x 2 ⅛ in.	7.20
No. WW31.	No. 7 Finish, Antique Copper, Real Bronze Metal, 7 ⅝ x 2 1/16 in.	10.80

Half dozen in a box, with screws

DOOR BELLS.

HALF SIZE CUTS

DUPLEX PUSH BUTTON.

PLAIN DESIGN.

Nos. 321 and 327.
4 x 2 in.

LOWELL DESIGN.

No. WL327
5 x 2⅛ in.

		Per dozen
No. 321.	No. 1 Finish, Real Bronze Plate, 3 ½ in. Nickel Plated Steel Gong	$12.00
No. 327.	No. 7 Finish, Antique Copper, Real Bronze Plate, 3 ½ in. Antique Copper Steel Gong	13.00
No. WL327.	No. 7 Finish, Antique Copper, Real Bronze Plate, 3 ½ in. Antique Copper Steel Gong	13.00

One in a box, with screws and connecting rod.

New Model D Rainier

Following the past custom of the Rainier Motor Car Company, only one chassis is offered for 1908. This is the design of Mr. J. G. Heaslett, who has charge of the new Saginaw, Mich., plant.

The new factory stands on a tract of over sixty acres owned by the company, the buildings including machine, assembling, test and painting and body-fitting shops, a power house and a separate building for the offices and drafting rooms. All the structures are of brick, built in what is known as mill construction, with glass monitor roofs. On the surrounding ground is a half-mile track for testing.

The grinding machinery is in a separate room, enclosed by glass and equipped with a large suction ventilator for carrying off the dust particles. Thruout the plant the latest and most improved automatic machinery and jigs can be seen, making exact duplication of parts possible.

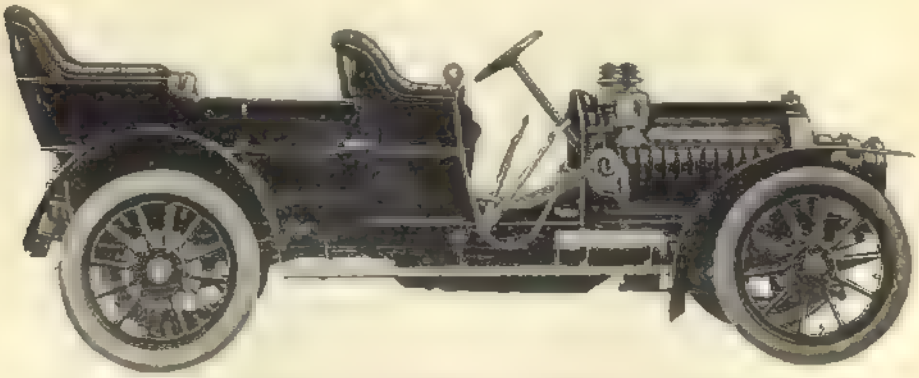


Fig. 1. Rainier Model D Touring Car. Motor, 45-50 H. P., 4 cylinders, 5 x 5¼, cast in pairs with integral water jackets, special make and break ignition from Simms-Bosch low tension magneto, positive feed mechanical lubrication, 4 speed forward and 1 reverse change speed gear, direct on the third speed, shafts mounted on imported annular ball bearings, multiple disc clutch, shaft drive to floating rear axle, two sets of internal expanding brakes on rear wheels, 36 in. wheels with 4 inch front and 4½ inch rear tires, make optional wheel base [illegible] inches, weight [illegible] gallon gasoline tank under the front seat, equipment, 2 headlights, 2 side lights, [illegible] generator, horn, coat rail, foot rest, tire carriers, trunk rack, tool box, kit of tools, including pump, jack and tire repair kit; price, with touring body, $450[illegible], limousine, $5[illegible], landaulet, $5800.

The output for 1908 will be kept down to 300 cars, the present capacity of the plant without overtaxing men or machines. The Rainier yearly guarantee system will be continued and it is claimed that nothing but the very best of material is allowed to enter into the construction.

THE NEW MODEL "D."

The new Rainier is known as model "D." This new car is of higher power to meet the popular demand and embodies many desirable improvements, altho the essential characteristics of previous Rainier cars have been retained.

The cylinders have been increased to 5 x 5¼ inches and develop 45-50 H. P. The wheel base has also been increased and is now 119 inches, not so long as to be unwieldly and yet short enuf for easy handling. A drop frame is used and the radiator has been set back directly over the front axle, thus adding to the rakish appearance. The wheels have been increased to 36 inches in diameter.

THE MOTOR.

The four 5 x 5¼-inch cylinders are cast in pairs with unusually large water jacket spaces, the jackets being cast integral. A large removable aluminum plate covers the top of each pair of cylinders and acts as an expansion plate in case of a freeze-up and also permits of ready access to the water jackets for inspection or cleaning. The cylinders and pistons are of a special grade of hard grey iron of light but rigid construction, and both are accurately ground and lapped so that the pistons are a perfect fit in the cylinders. All these castings are made in baked molds. The valves are nickel steel forgings, are mechanically operated, interchangeable and located on opposite sides. The valve lifting rods are adjustable in length by means of screws and lock nuts. The cam shafts with their integral cams are case hardened and ground to shape. Special bronze bearings which have been used on all the previous Rainier models with satisfaction, are used in the 1908 construction. The cam shafts are housed in the crank case. The crank shaft is machined from a solid block of nickel steel, and its bearings, as well as those of the connecting rod, are of large surface and of the inserted type; that is, are bronze shells with babbitt interlining, which gives the advantages of each type of metal without the disadvantages of either.

The engine base is supported directly from the main frame, being webbed to the frame members, the web forming an efficient mud shield. The bearings are held in the upper half of the case, the lower half being simply an oil pan, its lower half

being divided into two compartments by a web for aiding lubrication. Each compartment is supplied with a draw-off plug. The special design of the exhaust manifold can be seen in the view of the exhaust side of the motor. The construction is such that the cross sectional area increases and thus prevents unnecessary back pressure.

LUBRICATION

Oiling is by means of a positive mechanical oiler, gear-driven. Leads supply oil not only to the engine bearings, but also to the magneto and pump shaft bearings. The cylinders and pistons are supplied by means of the splash. The oiler is self-contained and can be easily removed. It is supported on the engine crank case. The half time gears are enclosed in an oil tight aluminum case not open to the splash and are packed in grease.

The engine is water-cooled, circulation being maintained by a gear-driven pump of bucket type. The radiator is of the honeycomb type and a large fan is mounted on imported annular ball bearings. This fan is driven by a V-shaped belt and is so mounted on an adjustable bracket that the belt tension can be changed to suit the requirements. The radiator cap is of new design, being elliptical in form, suitable for pouring into from a pail, the top being held by clamps instead of screw threads.

THE CARBURETOR

A float feed carburetor of the automatic type, with an auxiliary air valve controlled from the dash, is used. The mixing chamber is enclosed in a hot water jacket connected with the circulating system. The gasoline flow is by gravity from a 20-gallon tank under the front seat, a strainer being interposed in the line. The intake manifold of Y form is shown in the side view of the motor. The carburetor is controlled by the usual throttle lever on top of the steering wheel and an auxiliary pedal is also fitted. A tickler is provided so that if necesary the carburetor can be flooded without raising the hood. It is claimed the car can be throttled to five miles on the direct drive or speeded up to 50 miles per hour.

Accessibility is one of the features of the motor design and the pump and magneto can both be removed without displacing the half-time gears. Compression relief cocks are not fitted, but a device is so arranged that the exhaust valves can be partially lifted giving the same result, so that the motor can be started without undue effort.

IGNITION.

Make and break ignition, the current being furnished by Simms-Bosch low tension magneto, is used. This system has been used by the Rainier Co. for several years, but for 19 8 the method of its application has been improved and simplified. A short piece of wire transmits the current from the low tension magneto to a buss bar placed horizontally on top of the cylinders and connected by means of knife switches with the four spark plug electrodes. When the motor is in operation the electrodes are constantly charged, but give sparks only when the hammer leaves the anvil, the action being purely mechanical. It is claimed the spark is four or five times as large as that given by the jump spark system and that it will explode almost any kind of mixture. The use of this sparking mechanism, of course, does away with a multiplicity of wires, commutator,

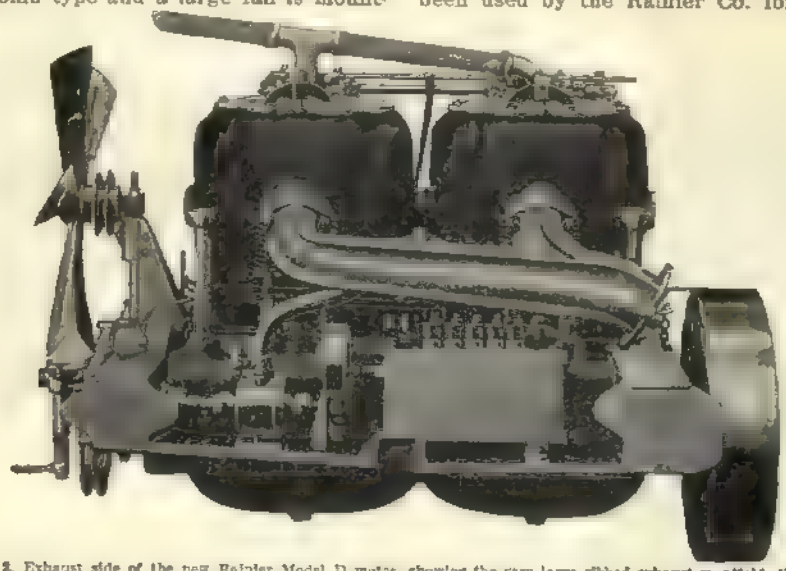


Fig. 2. Exhaust side of the new Rainier Model D motor showing the very large ribbed exhaust manifold, the mounting of the gear driven bucket type pump and the mechanical lubricator. The cylinders are cast in pairs as shown with very large integral water jackets. Bore 5 [illegible] inches, stroke 5¾ inches; rated horse power, 45-50. The fan is mounted on annular ball bearings and the belt tension is adjustable. The tops of the water jackets are covered by large aluminum plates

vibrating coils, etc. The mechanism is clearly shown in the accompanying cut. In place of the small springs, trippers and levers formerly used, a single rotating shaft which brings the hammers into contact with the electrodes, is used. Immediately after the cams have passed the breaking point, the hammers spring back sharply under the impulse of a powerful compression spring which works in oil and is the only spring used on the entire mechanism. The ignition shaft is rotated by means of spiral gears through an upright shaft from the cam shaft and is provided with a ratchet device to take care of any kick back of the motor. The time of ignition is varied by means of a sleeve on the upright shaft which raises and lowers the driving spiral gear and thus changes the time of rotation of the ignition shaft. The timing of the engine is also simple and is accomplished by turning the fly-wheel to the mark corresponding with the respective cylinder, adjusting the cam until it touches the hammer rod and then tightening the special clamping device. The hammer and the anvil is a self-contained mechanism in each spark plug. These plugs are held in place by a nickel steel yoke held by a single bolt and nut. The contact points have been improved and their life lengthened by the use of iridio platinum points which do not burn appreciably. This system, it will be seen, is much simpler than that ordinarily used, where the operation is by means of four vertical reciprocating rods on the outside and separate small springs.

A multiple disc clutch is used in the 1908 models. This consists of 70 tempered steel discs revolving in an oil bath The clutch has only one adjustment, which is the tightening of the thrust spring to increase the tension. The entire clutch can be easily removed by loosening a few nuts and screws and does not necessitate disturbing the transmission or motor. A new style of universal joint is interposed between the clutch and transmission.

CHANGE SPEED GEAR

The general construction of this mechanism is along the lines previously used, but in model D an extra speed has been added, giving four speeds ahead and one reverse. The control has been changed to the selective type and the direct drive is on the third speed, which has a ratio of 3 to 1, while the fourth speed is through gears with a ratio of 2¼ to 1. This makes it possible to run practically all the time on the direct drive, and if it is desired to make very fast time, the fourth speed can be used, in which case the tail shaft rotates at a higher rate of speed than the engine. All the shafts and gears are of nickel steel, heat treated. The gears are bolted to flanges integral with the shafts and all the nuts are cotter pin retained. Non-adjustable annular ball bearings are used thruout. The counter-shaft or lay-shaft is placed below the driving shaft, thus permitting of the use of sealed bearings, preventing oil leakage. The gear case is of aluminum fitted with a large removable hand cover, and is mounted by means of four integral arms. The shifting levers are all protected from dirt and grit by an aluminum cover, which is also oil tight.

AXLES

Shaft drive, as in the previous Rainier models, is used, and the rear axle con-

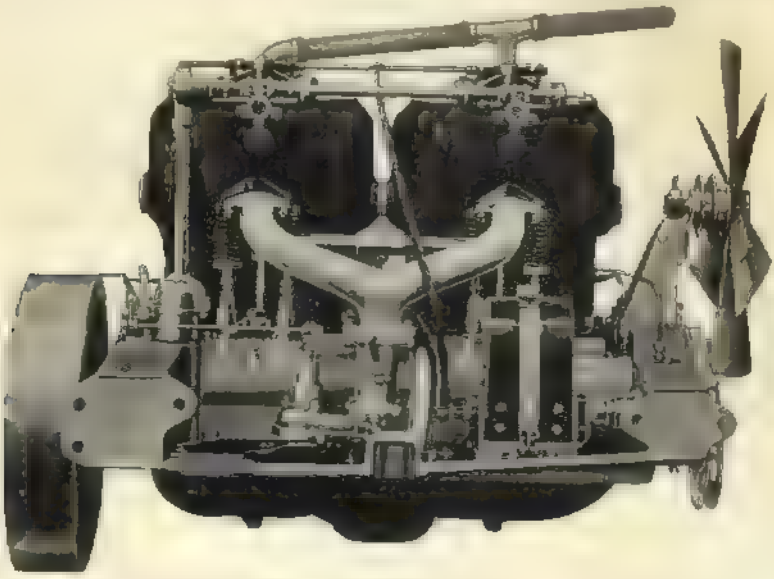


Fig. 3. Inlet side of the new Rainier Model D motor showing the location and connections of the new carburetor; the housing of the low tension Simms Bosch magneto, which supplies the current for the new make and break ignition system, which is driven by the vertical shaft shown at the left, which operates a horizontal ignition shaft at the top of the motor. The details of the ignition mechanism are shown in Fig. 4. The crank case of the engine is of aluminum the casing forming an integral pan construction.

struction, except for a few changes to provide for the slight additional weight in the car, has not been altered. The driving axle, as in all the other models, is of the floating type, the wheel bearings being mounted on the tubular axle which carries the weight of the car, leaving the rotating shafts to transmit the power to the wheels by means of dog clutches at the outer ends of the wheel hubs. The bearings are non-adjustable and the axle nuts can be screwed on as tight as desired without in any way affecting the bearings. The differential case is a drop forging instead of the usual casting, and the housings are all manganese bronze. The gears and propeller shaft are all of nickel steel, the driving pinion and its shaft being integral, the pinion being supported by a bearing on each side of it. Two universal joints of new and improved type are used The front axle is a forging of manganese steel of I-section. The front wheel hubs are also mounted, as in the case of the rear wheels, on annular ball bearings, all of these parts, including the steering knuckle, being of generous dimensions. The knuckle is fitted with a hardened steel bushing and hardened steel pin and an oil cup on top provides constant lubrication.

The front springs are semi-elliptic, 2¼ inches wide, and are of extra length. The rear spring suspension has been altered for 1908 and is now of the platform type and differs from the ordinary construction as the rear frame member is carried out backwardly at the centre and rests directly on the rear cross spring, which is clipped to it. The usual side springs are used and side motion is avoided by the use of short coupled shackles. The construction is shown in the accompanying photo. The springs are 2¼ inches wide and all of ample length, and are said to be of the very finest quality obtainable. Oil cups are placed on all of the spring connections.

The frame is of prest nickel steel of the usual channel section, heat treated, after being prest into shape. It has a 2½-inch drop forward of the rear axle. All of the bolts and nuts are cotter pin retained. A short aluminum pan extends under the clutch and transmission gear, and as previously stated, the motor base forms a protecting pan.

The wheels are of the very best grade, second growth hickory, known as "A," and are mounted on imported annular ball bearings. The front wheels carry 4-inch tires and the rear 4½-inch tires. Any American make can be supplied with standard clincher rims. Other styles of rims are furnished without extra charge if desired.

The Rainier muffler has been retained, but has been increased in size. It is placed transversely at the extreme rear of the chassis and is provided with two duck-bill vents so placed that the discharge of the exhaust gas is directly in the path of the rear wheels, thus preventing the dust from rising and also doing away with any chance of the gas coming up through the floor boards. The exhaust pipe is 3½ inches in diameter and the entire pipe has no sharp bends or angles, but runs backward from a rounded elbow, thus giving as little back pressure as possible. Each car is fitted with a muffler cut-out controlled by the pressure of the operator's heel.

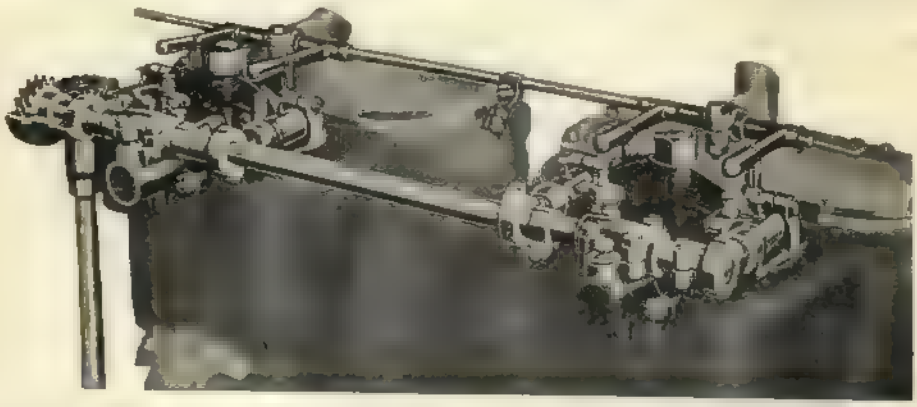


Fig. 4. Detail view of the Model D Rainier make and break ignition mechanism. This mechanism has been simplified, and instead of four vertical shafts, a single shaft at the rear of the motor operated from the cam shaft, drives by means of spiral gears a horizontal ignition shaft carrying four adjustable in position igniter cams held by special clamping devices. The rotation of this shaft and the timing of the ignition can be varied by a vertical movement of the spiral gear on the vertical driving shaft making the timing as simple as on the jump spark system. A short piece of wire leads from the dynamo to the center of the buss bar which is connected to the plugs by means of knife switches. When in operation the electrodes are constantly charged, but only give a spark when the hammer leaves the anvil. In place of the small springs and the trippers and levers formerly used the cams bring the hammers to the contact points and immediately after the cams have passed the breaking point, the hammers spring back ready under the impulse of a single powerful compression spring which works in an oil bath and is the only spring used in the whole mechanism.

BRAKES AND CONTROL.

Both brakes for 1908 are mounted on the rear wheel drums. They are of extra large dimensions and metal to metal, both being of the internal expanding type and holding equally either in a forward or backward direction. The emergency brake is controlled by a pull lever and the foot

brake is connected with the outer or larger drum, which change has been made as this brake is the one more often used, and, consequently, should have the greater wearing surface and durability. For this large brake a very slight pressure of the foot is required. The usual spark and throttle levers are mounted on a stationary sector on top of the steering wheel.

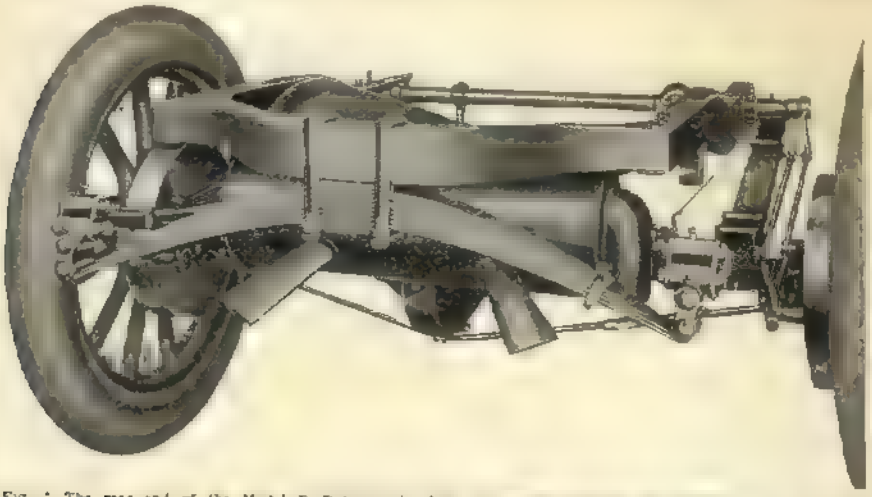


Fig. 5. The rear end of the Model D Rainier, showing the [illegible] construction and its method of mounting to the outwardly bent rear frame member, also the arrangement of the large muffler and the double exhaust outlet. Double sets of brakes of the metal to metal expanding type are fitted to the rear wheels, each on separate drums, those in the larger drums being the pedal operated service brakes, as those are the ones which are used more often and require longer life.

The make and break system to a great extent takes care of this automatically, due to the speed of the low tension magneto, therefore, the control is to this extent simplified. Attention is called to the foot accelerator for use in negotiating crowded streets, as the speed of the car can be instantly increased or decreased without removing the hands from the wheel, the

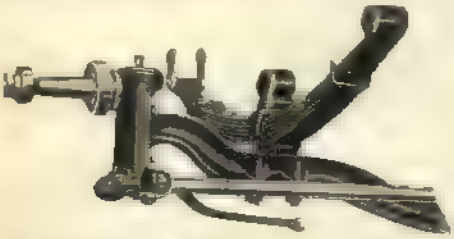


Fig. 6. View of the Model D Rainier manganese steel I section front axle and steering knuckle showing the method of mounting the front springs. Attention is called to the generous dimensions of these parts. The knuckle is provided with an oil cup on top for lubricating. The stub axle is fitted with non adjustable angular ball bearings.

clutch and brake pedals being on a pivot pushed forward instead of downward. The emergency brake levers are in the usual position at the side of the driver's seat. An auxiliary air control lever, by means of which the mixture in the carburetor can be changed from the driver's seat, is located on the dash and a push button for cutting off ignition is also placed on the dash. With the exception of these two devices the dash is entirely clear.

The steering mechanism is of the combination rack and pinion type and is irreversible. It is well proportioned, thoroly hardened and the reach rods and knuckles are all of angle steel. The steering column ends in a quadruple thread screw. On this a square nut travels, the back of the nut being cut in the form of a rack which engages a pinion and gives an oscillating motion to the steering arm. A ball bearing takes the thrust of the screw and the entire mechanism is enclosed in an oil-tight case.

The weight of this car complete is 2950 pounds, and although the increase in the power over 1907 is nearly 50 per cent., the corresponding increase in weight is but 20 per cent.

BODIES

The accompanying cut shows the outline of the new convex body. These bodies are all of aluminum with ash frames, and are upholstered in hand-buffed leather over curled hair and spiral springs. All the touring bodies are ironed for tops and have two removable folding seats. The passenger capacity is seven, comfortable accommodations being accorded to all, as the rear seat measures 52 inches between cushions. Limousine and landaulet bodies are also supplied and fitted with every comfort and luxury, including electric dome light, speaking tube, push button, card case, clock, silk curtains and two removable opera chairs.

The Rainier Co. wish it understood that this is not to be known as a 1908 or 1909 model, but is the Model D, and should any change suggest itself to the manufacturers it will be at once applied without waiting for a new model or season.

The price of the touring car complete is $4500; of the limousine, $5750; and of the landaulet, $5800.

Stilson Six

One of the recent entrants into the motor car industry is the Stilson Motor Car Co., Pittsfield, Mass., U. S. A., builder of the "Stilson Six," one chassis only being made but fitted with various types of bodies giving several models. This machine is high grade, both in material and workmanship and contains many minor deviations from the usual practices, all of which, however, tend toward comfort and reliability. The location of the maker in the hills of western Massachusetts gives exceptional opportunity for trying out the car on strenuous work, and as each and every machine is demonstrated to be satisfactory under these adverse conditions it is but natural to suppose that the "Stilson Six" will make light work of the less trying road conditions which are usually met.

CHASSIS SPECIFICATIONS.

The motor is of the six-cylinder type, cylinders cast separately with integral water jackets. The bore is 4 11-16 ins. and the stroke 5½, the engine being rated as 50-60 H. P. The valves are located on opposite sides, are interchangeable, mechanically operated and as noiseless as it is possible to make a valve. Ignition is by high tension magneto and also as a reserve a full set of coils and storage batteries are installed. A special oiling system is used which will be described later. The wheels are of the usual artillery type, second growth hickory, 34 or 36 ins. in diameter and are fitted with clincher or Marsh quick detachable rims. 4 in. front tires and 4½ in. rear of any American make, constitute the tire equipment. The wheel base is 123 ins., tread standard.

Drive is by means of shaft and bevel gears and a three speed and one reverse sliding gear of selective type. A double set of brakes of internal and external type are fitted to the rear wheels. The standard body is of side entrance tonneau touring type, seating seven passengers and is ironed for top. The car with this body completely equipped weighs 3225 lbs. and sells for $4500. The equipment consists of two large acetylene headlights, B. & L. mirrors, generator, two square oil side lamps, oil rear lamp, whistle operated by foot lever, footrest, robe rail, pump, jack and full kit of tools. With limousine body the car sells for $5500.

THE POWER PLANT.

The motor, which is the vital part of any self-propelled vehicle, is a very compact, neat looking and powerful piece of mechanism, the very neat appearance being due largely to the fact that the multiplicity of small pipes, wires and linkages have been localized and carried thru conduits or other means which protect these small parts and keep them from cluttering up the engine. The six 4 11-16x5½ in. cylinders develop 60 H. P. at 1100 R. P. M. The base of the engine is an aluminum casting which forms the pan and also the engine support and rests on the sub frame, which is of the usual channel section prest steel, the narrow space between this sub frame and the main frame being filled by a thin sheet metal pan so that it is impossible for any road dirt or splash to enter the space underneath the hood. This case is divided in a horizontal plane, the lower half, as usual, forming simply an oil pan with three large hand holes on the under side covered by plates. The main bearings are of babbitt seven in number, and hung from the upper half of the case.

The cylinders are good examples of foundry work with symmetrical valve chambers on opposite sides, well provided with water jacket space, particularly around the exhaust valves. The tops of the valve chambers are fitted with screw plugs with castellated tops and are tapped to receive the spark plugs. The valves are 2 1 16 ins. diameter with 7-16 in. lift and are made with integral heads and stems with large fillets. The usual helical springs are used for closing them, the lower end of the springs resting on a flanged washer, the lip of which prevents an ordinary straight pin placed thru the stem of the valve from coming out of place, thus retaining the springs. The valve lifting rods are fitted at their lower ends with 1 1-16 in. diameter hardened steel rollers ½ in wide, the rollers themselves working in slots in the valve lifting rod housings and thus preventing the lifting rods from turning. The guide housings are of bronze and are held by two cap screws each to suitable bosses on the crank-case, while the lifting rods, contrary to usual practice, are made of Shelby steel tubing, pack hardened and ground.

A neat arrangement for excluding dirt consists in making the top of the valve lifting rod guides in the form of inverted cup-shaped caps which move up and down with the lifting rods and are a sliding fit over the outside of the housings. The cams are of special contour fastened to the shaft by means of two pins each. The cam shaft runs in four bearings which are arranged as follows: a large bearing is placed at each end and two others are placed between the two sets of cams so that each end of each bearing comes outside of a cam and supports the same. The six throw crank shaft is cut from a solid bar of chrome nickel steel with a six inch integral flange at its rear end, which by means of eight ⅝-in. cap screws and two dowel pins carries the 16-inch, 60 lb. flywheel. The connecting rods are H-section drop forgings, the lower cap being held by four Vanadium steel thru bolts with two

check nuts and a cotter pin at their lower ends. The upper end of the rod is non-adjustable and fitted with a sleeve bushing of bronze. The crank pin bearing is of babbitt of liberal dimensions. The wrist pin is of Shelby steel tubing, pack hardened and ground and prevented from side slip by two set screws which pass thru the piston bosses into the hollow inside of the pin and have a bent wire placed thru holes in their inner ends to prevent them from coming out, this method being one of the simplest and most effective known. The pistons are of standard design, good quality, of gray iron and fitted with 4 rings above the pin.

The gears at the forward end of the engine are enclosed and packed in grease the crank shaft gear being of steel while the cam shaft gears are a combination of bronze and fibre for quiet running. A longitudinal shaft on the left side of the engine is driven from a small steel gear at its forward end from the cam shaft and operates the magneto and the pump, which is of centrifugal type

The carburetor is a large size Schebler fitted with a special balanced throttle of the company's own make.

Cooling is effected by means of this pump and a honeycombed type of radiator which is claimed to be exceptionally efficient, so much so that the car can be run without the use of any fan, although a small brass bladed fan on ball bearings is provided, the fan support being held to the forward cylinder. The fan is driven by a round-section belt from the pulley on the pump shaft. Circulation is from the pump to the lower part of each of the cylinder jackets near the exhaust and out thru the top by means of thin brass piping to the top of the radiator.

EXHAUST AND INTAKE MANIFOLDS

The exhaust manifold is a single piece malleable iron casting with easy curves and of varying cross section to correspond with the volume of the exhaust gases to be disposed of. The intake manifold is peculiar, being a special patent of Mr Stilson and is so designed that it is claimed the volume of gas conveyed to each of the six cylinders is equal. The general layout of this intake can be seen in the accompanying photograph of the right side of the engine. The design is such as to minimize the effects of inertia of the body of gas in the pipe, this being accomplished by making the distance to each of the six intake chambers equal

A 23-gallon gasoline tank is suspended from the rear of the frame and supplied by pressure from the exhaust pipe thru the usual reducing valve placed on the dash under the hood. About ten miles to the gallon is claimed for this machine which is extremely good for a six-cylinder car of this weight. The aluminum dash, by the way, deserves special mention as it serves the double purpose of a dash and a series of compartments, one of which, being cast integral with it, forms an oil tank. The dash is cast in a curved form, the back being neatly fitted with mahogany and also forming a compartment for the coil. The dash proper is clear of apparatus with the exception of a small hand pump to supply air pressure to the gasoline feed when starting and a small window in it shows the level of the oil in the oil tank

The oiling system consists of collecting the surplus oil in a chamber in the base of the crank case, from which a small gear pump, bevel gear driven from the cam shaft, forces the oil which first passes through a strainer, to the tank in the dash.

Fig. 1. [illegible] which is claimed to [illegible] cylinder, 60 H P car The motor is 4 11-16 [illegible] cast separately [illegible] from Simms-Bosch high tension magneto and [illegible] vibrating coil [illegible] hollow cast aluminum dash [illegible] integral oil tank [illegible] wheels, [illegible] of American tires, selective [illegible] gear [illegible] bearings, 22 gal [illegible] tank at rear of frame extra long springs, wheel base [illegible] tread, 56 Price fully equipped, $55[illegible]

From this tank oil pipes lead the length of the case and small branch oil pipes diverge from it and supply oil for lubricating each of the bearings, the overflow being sufficient to maintain the splash in the case which takes care of the cylinders. In the top of the connecting rod is a small cup shaped hollow which catches the splash and conducts the same thru an oil hole to the wrist pin bearing and also thru holes to the inside of the hollow wrist pin from which place it runs to the ends, thus giving additional lubrication to the cylinder walls.

IGNITION

Ignition is by means of jump spark, current being furnished either by ten dry cells or by Simms-Bosch high tension magneto. The battery and plugs are over the intake valves while the magneto plugs are in the side of the cylinders near the head. A six unit vibrating Jacobsen-Brandow coil is used in connection with the storage batteries, but simply for starting and as an auxiliary. This coil is entirely protected from the weather by being placed in a compartment within the curved cast aluminum dash, but is accessible by means of a small swing door. This new coil has several distinctive features, among which may be mentioned a micrometer adjustment of the vibrators, this adjustment being so arranged that either the spring contact or the screw contact point may be entirely removed and replaced without spoiling the adjustment. The coil is made up in the unit type so that each part can be removed as desired. No external wires are necessary, the placing of the units in the box making suitable spring contact connections. The order of cylinder firing used is, 1, 4, 2, 6, 3, 5

CLUTCH.

The clutch is of the cone type fitted with special leather face and provided with cork inserts giving gradual engagement and durability. It is forced into contact with the inside of the fly-wheel by means of the usual helical spring of about 250 lbs. tension. The clutch shaft is carried backward into the change gear case, which is of aluminum, but contrary to the usual custom is cast in one piece but the gears are accessible as the top forms a large hand hole cover. The gears provide three speeds forward and one reverse and are selectively operated. The drive is direct on the high, the gear reduction being 2½ or three to one at the rear axle, as desired. The sliding members move on four integral keys on the sliding gear shaft. The shafts are mounted on Hess-bright bearings, these shafts being removable by unscrewing caps at the ends of the case. Gears of 6 pitch in width and 8 pitch in depth are used, this form of tooth being very strong. The selective gear shifting lever operates in a quadrant and is pivoted so that it swings in three different planes, engaging in the two extreme positions short levers which operate telescoping sleeves on a cross rod, the sleeves being provided with arms at their inner ends which connect with the gear shifting rods. The gear case is mounted on four integral arms to the sub frame on which the engine is also placed.

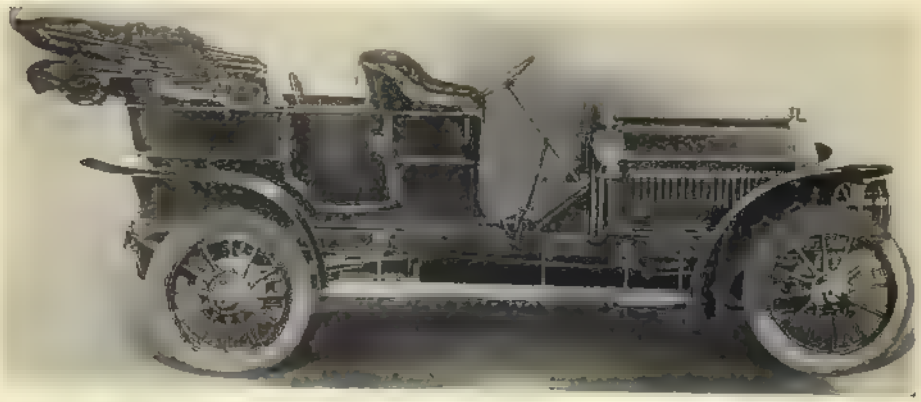


Fig. 2. The Stutson Touring car. The 6 cylinder motor is rated as 50-60 H. P. Comfortable seating is provided for 7 passengers. Attention is called to the graceful [illegible] overhangs or the usual ponderous hoods [illegible] capacity the use of 6 cylinder engines. The chassis is the same as the larger car. The weight is 3235 lbs. price $4500.00 fully equipped.

FRAME AND SPRINGS.

The frame is of usual type, consisting of channel section prest steel, narrowed at the front and the sub frame is of similar material and construction and extends from the forward end to the extreme rear of the change gear case. Semi-elliptic springs are used in front and rear, the rear springs being entirely out of the ordinary, as they are fully 60 inches center to center and contain twelve leaves, thus giving an extremely easy riding tonneau. The forward springs are as large as are very often used on the rear of a great many touring

cars, being 34 inches in length. These are 2 inches in width. All springs are perched on top of the axles, both springs being shackled at their rear ends.

DRIVE BRAKES AND AXLES.

Power is transmitted from the gear case thru the universal-joint shaft to a full floating rear axle. Two new Hartford universal joints are used, one at each end of the driving shaft. The rear axle construction is fitted with ball bearings thruout and is well trussed, the design being such as to relieve the live axles of the weight of the car. Dog clutches are used at the ends of the live axles to drive the wheels, this construction, of course, permitting these axles to be taken out at any time with the car still standing on its wheels. The rear wheels are each fitted with two brakes, one expanding and the other contracting. Both of these brakes are entirely independent of the clutch. The outside or service brake is a camel hair belting lined, double-acting contracting band, while the inside or emergency brake is similarly lined and of expanding type, being operated by rocker cams. Two singletree-type equalizers, each being the full width of the frame, ensure a distributed pull on each of the brakes. A heavy tubular torsion arm is fitted to the rear axle, its forward end being held between helical springs in a special fixture attached to a cross frame member.

There are two pedals, one controlling the service brake and the other operating the clutch. The emergency brake is controlled by the outside hand lever, and following the usual custom, the change gears are also operated in this manner. Spark and throttle lever control is supplied on top of the steering wheel which is of large size.

The front axle is a one-piece I-section drop forging of chrome nickel steel. The steering knuckles are also drop forgings and the wheels are mounted on imported ball bearings of adjustable type, using Vanadium steel cones. The wheels are 34 or 36 ins. in diameter of second growth hickory and fitted with 4 in. front and 4½ in. rear tires, the choice of any standard American make being given. The steering gear is somewhat out of the usual order, consisting of a nut working in a rack, which in turn operates a spur gear at the upper end of the steering arm, the lower end of which is fitted with a ball and socket joint to the usual drag link connecting with the steering knuckle. The steering gear is entirely encased and runs in grease and is, of course, irreversible. It is

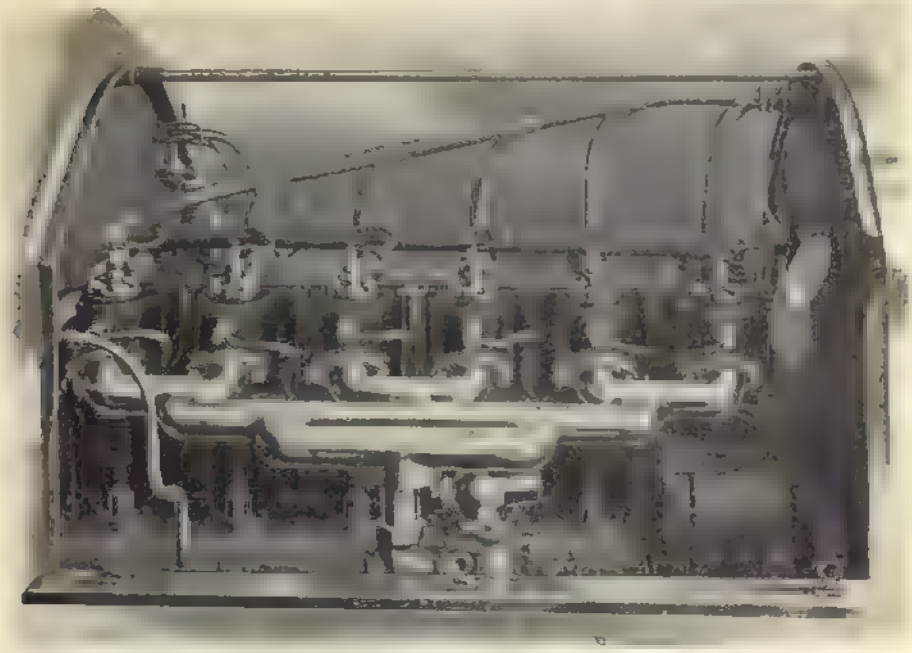


Fig. 3. Inner side of the [illegible] 6-cylinder motor [illegible] arrangement of the pipes and wiring. The cylinders all cast separately are very compact and [illegible] inches. A special oiling system the tank being cast in the aluminum crank case [illegible] The peculiar [illegible] is patented and is claimed to deliver the same quantity of mixture to each cylinder. It is arranged [illegible] that the distance to each valve chamber is the same. The claim is made that this engine is so [illegible] running that a person in the tonneau cannot tell whether it is running or not. Detailed description will be [illegible] in the text.

rigidly attached to a side frame member and also to the sub-frame, and the steering post is well supported. A feature of this

Fig. 4. Stilson Six. View showing the rear of the hollow cast aluminum dash, door to the compartment and containing the six unit vibrating coil is open so any unit can be removed. This arrangement makes the coil absolutely waterproof. The oil tank is at the right side and cast integral with the dash. It has a wind a showing the oil level. The small hand pump is for initial pressure on the large gasoline tank at the rear of the car

steering gear is the fact that all thrust is taken on ball bearings.

The entire construction of this machine is along standard lines, the merit of which cannot be questioned, the material is high grade and the workmanship exceptionally good. The finish is what it should be on a high grade machine, heavy fenders webbed to the frame being used and well supported to the running boards. Trunk racks, robe rails, foot rests and other minor necessities of touring are arranged for. The car is said to be extremely easy riding and a specially good hill climber and one of the chief points claimed for it is the fact that the engine is so smooth running and well balanced that it is impossible for persons sitting in the tonneau to feel any vibrations from it or hear it. The muffler is of special design and extremely efficient, entirely silencing the exhaust so that the car is practically noiseless.

A new form of clutch which has recently been patented and here described and illustrated for the first time will be used in the new cars.

The object of this device is to automatically insure an easy starting of the car, independent of the operator, and it is claimed that it serves very much the same purpose as a change of gears in the starting operation, and that there is no serious heating of the oil under such conditions

Crown Motor Carriage

The Crown Motor Vehicle Company, with factories at Amesbury and Boston, Mass., and Boston office at 33 Motor Mart, Park Square, has just placed upon the market a new carriage type automobile, which has several distinctive features. This new vehicle owes its origin to a combination of interests. Mr. W. A. Shafer, well known as the New England distributer of the Glide cars, is the president of the company, and Mr. J. R. Graves, president of the Graves & Congdon Company, of Amesbury, well known, high grade automobile body designers and builders, is the secretary of the company, and Mr. Frank Dodge, mechanical engineer and designer of automatic machinery, is the treasurer.

The bodies for the new vehicles are built at the Amesbury factory, while the engine and other mechanism are constructed in Boston

GENERAL ARRANGEMENT AND SPECIFICATIONS.

The Crown motor vehicle, as shown in the accompanying photograph, has a neat, carriage-like appearance, there being nothing special to indicate the presence of machinery or mechanism of any kind, other than the side driving chains, which in future models will be entirely encased, protected from road dirt and also providing protection for the wearing apparel of lady operators.

Tiller steering is employed, the lever being placed in front of the right-hand occupant. The motor is of the two-cylinder, opposed, air-cooled type, having a bore of 4⅜ inches, stroke 4 inches, and develops 12 horse-power actual. All parts of this motor, which is of special design, are interchangeable, and as it is located in the rear of the body and not under the seat, it is very accessible. It is mounted on a three-point suspension, and drive is by means of a shaft running forward to a jack shaft carried on an aluminum cross member attached to the side frame members of the carriage, and at the centre of this cross member an integral aluminum housing carries the bevel gear pinion and spur gear differential. The usual sprockets are fitted at the ends of the jack shaft and drive to the rear wheel sprockets by means of chains. The frame of the vehicle is angle steel, suitably riveted and well braced, and upon this a highly finished, Crown special body is bolted.

The spring suspension consists of two full elliptic springs, one at the front and one at the rear perched on top of the ax

force carries the oil to these important bearings. From the main longitudinal lead oil holes are drilled up and into the cylinder walls and an adjustment is placed at each cylinder. This adjustment is arranged so that the same can be adjusted from the outside with the engine running and the oil will flow outside so that the amount can be definitely determined. The adjusting mechanism can then be shoved inward and will give exactly the same flow to the cylinder wall. The ring around the center of the cylinder and the hollow wrist pin provide oil for the wrist pin bearing. A special lead is carried to the gears at the forward end of the engine case and the rear end of the main longitudinal lead is fitted with a bleeder cock so that at any time it is possible to test the quantity of flow. By removing this cock a wire can be run the entire length of the oil lead to clean out the same in case of any obstruction. The whole system is unobtrusive, in fact, practically does not show at all and is self contained in every respect. All that is necessary after it is once set is to occasionally replenish the supply in the crank case sump, which is but a minute's work as the left side of the case has three large hand hole plates which can be instantly removed.

THE TRANSMISSION

The speed change mechanism is rather peculiar, being a sliding gear, having only two speeds forward and one reverse, but with a car of this size, powered by a 6-cylinder motor, the makers state that more than two speeds have been found unnecessary. Even the low speed is used but very little, only in starting or for excessive grades. This change mechanism is, of course, progressively operated, there being only two speeds, and the gear reduction at the rear bevels on the direct drive is 3 to 1. The countershaft is underneath the main shaft, both shafts running on bronze bushed bearings. There is only one sliding gear member and this is moved by the usual yoke of manganese bronze and controlled in turn by the side hand lever operating in a notched sector, the reverse being at the rear, a forward movement reaches the neutral and a continuation of this motion of the lever engages the low and then the high. The sliding gear member is moved by the usual yoke, which is of manganese bronze.

A multiple disk clutch, the disks being of steel, is housed in the forward end of the case and the disks are provided with slit edges forming integral springs which accomplish the disengagement and overcome the oil adhesion. The entire mechanism runs in an oil bath, a light oil being used. A separate pedal for the clutch is provided at the left. This is connected without the use of the usual links. Its lower portion forms an integral gear segment which meshes with another gear segment on the shaft controlling the clutch yoke, this combination being very simple and effective and doing away with several parts

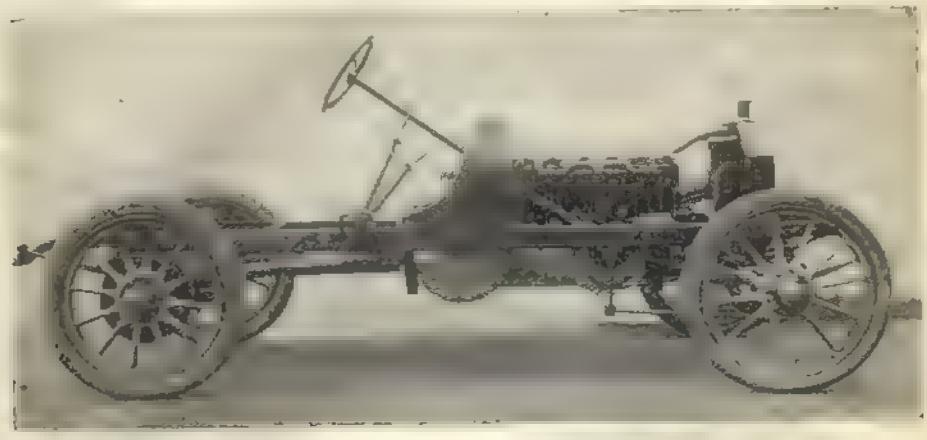


Fig. 5. Side view of the "Benner Six" chassis. This car has a very compact 6-cylinder motor; cylinders cast in [illegible] The wheel base is 100 inches, wheels 22 [illegible] multiple-disc clutch, and two speed and reverse, sliding change speed gear, form a unit, mounted on a 3-point suspension. The cars are geared 3 to 1, but 2 to 1 can be had if desired

The internal brake is lined with camel's hair belting, the drum being 14 inches in diameter and having a face width of 2 inches. This brake is controlled by the hand lever. The outside contracting band brake on the same drum is "Raybestos" lined and is controlled by the foot lever. The pull rods are of steel and the brakes are operated by a sort of toggle motion which makes them double acting and equally effective either when going forward or backing. The rear axle is a Weston-Mott with the usual spur gear differential of large size.

SPRINGS.

The springs are semi-elliptic, 6 leaves, 1¾ inches in width, 46 inches long at

last for a long period, the oil feeding slowof the rocker and the hardened steel roller which bears on the valve stem at the other end, thus giving long life and quiet running qualities to these parts which are all too often left to take care of themselves. The roller at the end prevents sliding action against the valve stem and also any tendency to push the valve stem sidewise and wedge the same. The valve

Fig. 2. Left side of motor showing the novel construction. Note the peculiar exhaust manifold and the large quickly removable hand hole plates and the manganese bronze forward supporting arm of the engine used instead of aluminum arms from the crank case. The water circulation pump is shown just to the rear of the flywheel and also the oil pipe leading from the sump at the bottom of the case to the gear oil pump at the forward end of the case. Special oiling system described in the text.

cages are slid into place and are prevented from turning by means of a vertical flat spring on the side, which engages a small groove in the cylinder casting, so that it is impossible for the exhaust opening to do otherwise than register with the exhaust chamber, into which each of the cylinders of a unit empty.

Fig. 3. Inlet side of motor showing the peculiar cast steel inlet pipe arranged to give an equal draw to each cylinder. The valves are all in the heads and operated by overhead rockers with hardened steel rollers. These overhead parts are oiled through a central duct drilled in each rocker arm, the oil being carried in small reservoirs in rocker arm supporting fixtures.

These cages are held in place by a screw cap, the head of which has a slotted nickel ring somewhat similar to a castle nut with which the wrench can be engaged for quickly removing them. The inlet manifold is a very light steel casting held by three studs to the center of each pair of cylinders. Steel is used in preference to aluminum on account of the superior threads which it is possible to give it, thus preventing any leaks into the inlet pipe system. The exhaust manifold is a one-piece casting having three arms, the ends of which are expanded into considerable sized chambers and are bolted to the outlet of the chamber of each of the cylinder pairs. The guides are long and easy as will be seen from the illustration. The cylinders themselves might be said to be mortised into the crank case, as the upper side of the case, which is of aluminum, is milled out to receive a projection at the lower end of the cylinder casting, insuring correct alignment and a tight joint. Each duel unit is held to the crank case by six hexagonal nuts on short studs thru bosses in the crank case, the under ends of the studs being retained by castellated nuts. The pistons are of the usual gray iron, contain three split eccentric rings above the hollow steel wrist pin and one ring which passes over the end of the pin and efficiently prevents it from side slipping and scoring the cylinders. The connecting rod is a drop forging of I-section, with adjustable lower end bearing of white brass, the cap being held by castellated nuts on studs from

The Benner Six

The Benner Motor Car Co. of New York, show rooms, 1677 Broadway, was incorporated in May, 1908, after a thorough and exhaustive try-out lasting over five months of the original Benner Six. In August, work was begun on the year's output of 100 cars, the first cars being finished in October. The Benner Six represents the work of Mr. Benner who has had years' of experience in buying, selling and overhauling almost every known make of car. After years of carefully noting the defects of these he decided to build his ideal machine: The result was the Benner Six. This machine was built for Mr. J. C. Welwood, who was so enthusiastic with the resulting car that after the thoro tests as stated he associated with himself Mr. A J. Michelbacher, the company consisting of the three mentioned

of material is being employed and no expense spared to make this car as near perfection as is possible at the moderate figure of $1750, for which it is being marketed. The standard color is Cobalt blue with fine ivory striping and black mud guards and panels.

GENERAL SPECIFICATIONS

The engine is six cylinders, 3½-inch bore by 4-inch stroke, rated as 25-30 H. P. A two speed forward and reverse sliding gear transmission, operated by side lever, is used, with shaft drive and single Blood universal joint to the live rear axle. The clutch is of the multiple disc type, thin steel discs being used and running in oil. The wheel base is 100 inches, wheels are 32 inches, 3-inch tires being used on the front and 3½ inches on the rear. The cars are regularly geared 3 to 1 at the rear

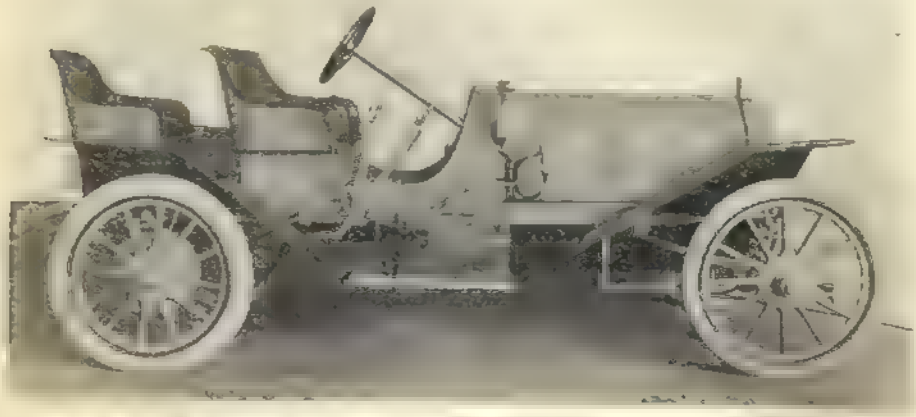


Fig. 1 [illegible] Benner Six' a new 6 cylinder car at $1,750.00. The motor has cylinders cast in pairs with integral water jackets 3½ x 4 [illegible] rated as 25-30 H. P. The engine and two speed sliding change gear form a [illegible] with flywheel at the front, flexibly mounted on three points. Clutch, multiple disc, drive by cardan shaft

The Benner Six, as its name indicates, is powered by a six-cylinder motor of extreme compactness with cylinders cast in pairs, the crank case and transmission case forming a unit, the whole being supported on a three-point suspension with a light fly-wheel at the forward end. The car is designed especially for a runabout and is normally fitted with divided front seats and a single rumble seat at the rear, but all three of these seats are provided with liberal height backs, insuring comfort. A double seated rumble can be had if desired for $50 additional or for $100 a baby tonneau is fitted. The car is upholstered in the finest hand buffed leather, plain and untufted. The best of white curled hair is used. The bodies are built by Cole & Woop, well known body builders of New York, and thruout the entire rig every detail indicates that only the best

axle and can attain a speed of 50 miles per hour, but can be geared 2 to 1 on special order if desired, as it is claimed there is plenty of power.

THE MOTOR

The six-cylinder motor, as shown in the accompanying illustration, is very compact, the cylinders being cast in pairs with integral water jackets and arranged with overhead valves, the cages of which are sunk into the cylinder heads and completely water jacketed, making a very neat design. These valves are all operated mechanically by vertical outside push rods and overhead manganese bronze rocker arms, the ends of which are fitted with hardened steel rollers. These manganese bronze arms are drilled from end to end with an oil channel and at the center contain an oil chamber which can be quickly filled from an oil can and will

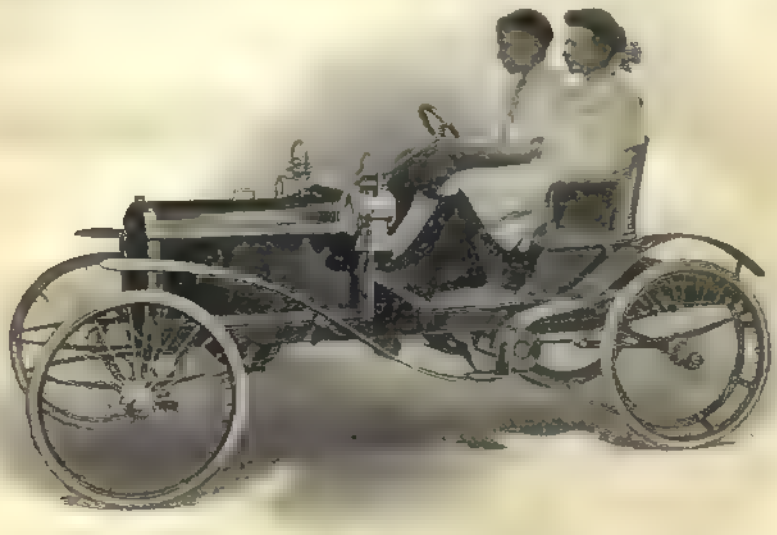
the rear, shackled at the rear. The front springs are of similar design, also shackled at the rear, 38 inches in length. Shaft drive thru a single Blood Bros. universal joint is employed. The shaft housing which forms a portion of the rear axle housing acts as the torsion tube.

The frame is of the usual prest steel construction, 5-32 inch in thickness, 4 inches greatest depth of side members and fitted with four pressed steel channel section cross members, hot rivetted and fitted with gusset plates. The central cross member is 2 inches in width, 3 inches in depth, and is depressed so as to support the rear end of the engine and transmission unit. The fastening at this point consists of a bolt, the under end of which is provided with a strong coil spring to allow slight motion, so that there will be no binding of the engine when the frame gives when going over rough roads. The front axle is of the usual I-section drop forging with Elliot type ends. All the levers, yokes, etc., are drop forgings and the steering gear is Brown-Lipe, which is also well known and does not need discussion. The cross link of the steering gear is in front of the axle. The front wheels are mounted on adjustable ball bearings, the outside balls being ⅛ inch diameter and the inside ball ¾ inch. Every wearing surface, even though the motion may be very slight, is provided with some means of lubrication. Even the spring eye bolts are fitted with small oil cups and grease cups are placed wherever there is a bearing which might require an occasional small amount of lubrication.

The three seated car carries a 15-gallon galvanized iron tank under the front seat and on the two passenger runabout model a large cylindrical tank is placed at the rear of the seat, racing fashion. A Breeze carburetor of float feed type is used. The levers on the hand wheel are friction retained and are connected to the throttle by means of small bevel gears at the lower end of the column. Gravity feed of gasoline is used on all the models and 15 miles to the gallon is the average made by the first machines, although this is gradually being improved and even a better consumption is expected on the regular models. An Ejector muffler is carried at the rear lengthwise under the body and is fitted with a good cut-out operated by a foot push button.

A GASOLINE CAR FOR CHILDRENS' USE

S. H. Mora, head of the Mora Motor Car Co., of Newark, N. Y., has organized the Omar Motor Co., of the same city, which is manufacturing a juvenile motor car called the "Brownlekar," the accompanying illustration giving a general idea of its appearance and size. The Brownlekar is a gasoline machine of light weight and low speed capability, being intended for the use of young folks and being geared down so that there can be no danger in its use from over speeding. It has been designed by a practical automobile engineer of several years' experience in the designing of large and powerful machines. It is, of course, of very simple design, so that any intelligent boy or girl of eight years or more can operate it. It has a maximum speed of 10 miles an hour. The engine is very simple and is provided with a sim-



The Brownlekar for children's use. Maximum speed 10 miles per hour, weight, 300 pounds; price, $150.

the rod itself while the upper end contains a split bronze sleeve bushing, the rod being also split, so that it grips tightly the wrist pin, the bearing of the pin being in bronze bushes set into the piston bosses. This gives a large bearing surface, the portions of which are well separated, preventing side play. The crank shaft is a steel drop forging of the usual six-throw type, fitted with four adjustable main bearings of white brass. These are held by thru bolts against integral webs of the upper part of the aluminum crank case. A single cam shaft with the cams keyed and pinned in position mounted in four split bronze bearings operate the lifting rods thru rockers pivoted at the opposite side of the case, thus doing away with any side thrust on the lifting rods. These rods are adjustable at their upper ends and their lower ends rest in a socket in a short, larger diameter lifting rod operating in the bronze guides. The cam shaft can be quickly removed as the entire right side of the crank case is covered by a removable plate, cap screw retained. The crank case is of aluminum cast in two parts with a horizontal division but is without integral separating arms. Its forward end rests on a special manganese bronze cross member, the ends of which are supported in manganese bronze stirrups. The ends of these arms are threaded so that the bolts thru them also form a lock to the frame. At the rear end the case joins rigidly to an aluminum case containing the sliding gear transmission and the rear end of this rests on a prest steel cross member at a central point. It is held by means of a bolt the under end of which is provided with a stiff helical spring giving these points flexibility so that no amount of weaving of the frame due to road inequalities can cause a bind or put any strain upon the engine parts At the forward end inside the case are the half time gears of cut steel. Outside of the case driven from a gear on the engine shaft is a short horizontal cross shaft, the right end of which is arranged to drive thru a flexible coupling a short longitudinal shaft which drives the magneto. This magneto is arranged to be carried on an integral bracket of the supporting cross member of the engine which is fitted as an extra, $150 being charged for it, the customer being given an option on either the Splitdorf or Bosch. The extreme end of the front horizontal shaft carries the timer. At the left end the gearing is arranged to operate a special bronze centrifugal water pump which forces water from the bottom of the Fedders square tube radiator thru brass pipes into the lowest portion of the cylinder water jackets. The water flows out of the upper portion of the jackets near the exhaust valves thru brass pipes to the top of the radiator All these gears at the front are completely encased and run in oil.

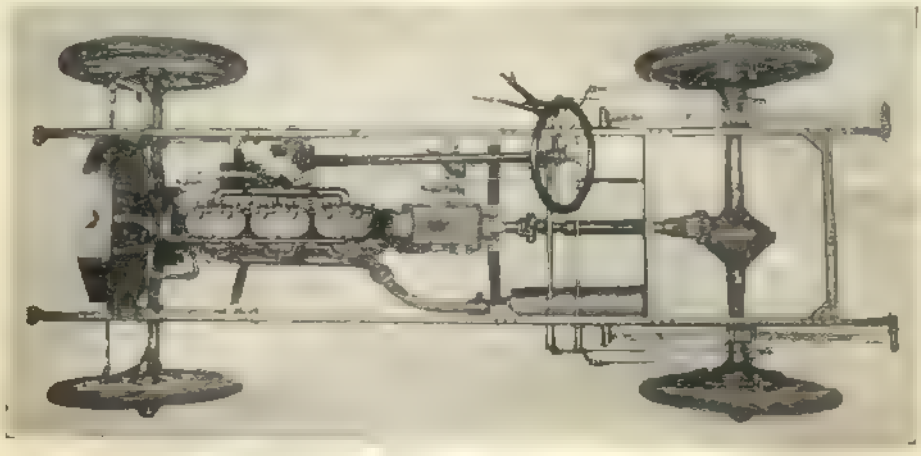


Fig. 4. Plan of Benzer Six' chassis showing the general location of the elements, arrangement of the springs brake rods, etc.

THE OILING SYSTEM

The method of lubrication of this engine is one of the special features. A sump is provided at the bottom of the crank case, the top of the case being fitted with a suitable strainer. No splash lubrication is employed, but a pump consisting of spur gears located at the forward end of the crank case and driven from the engine shaft draws strained oil from the sump and forces the same thru a system of leads to each of the cylinders and in large quantities to each of the main bearings, the overflow going back into the sump. The oiling system has been worked out very ingeniously, the main lead being drilled lengthwise out of the metal of the crank case. Oil is forced into the forward end of this and feeds thru tubes to each of the main bearings, the crank webs and pins being provided with oil holes so that centrifugal

EYE HAMMERS.

SPALLING OR STONE HAMMERS.

Solid Forged Steel, Oil Finish, with Hardened and Polished Face.

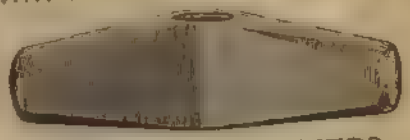
No. J Single Face.

Weight each, lbs.	4	5	6	8
Length, inches	6¼	6¾	7¼	8
Per pound	$0.50	.40	.40	.40
Weight each, lbs.	10	12	14	16
Length, inches	8½	9	9¼	9¾
Per pound	$0.40	.40	.40	.40

No. K—Double Face.

Weight each, lbs.	4	5	6	8
Length, inches	5¾	6½	7	7¾
Per pound	$0.50	.40	.40	.40
Weight each, lbs.	10	12	14	16
Length, inches	8½	8¾	9¼	9¾
Per pound	$0.40	.40	.40	.40

Solid Forged Steel, Oil Finish, with Hardened and Polished Face.



NAPPING HAMMERS.

No. N Double Face.

Weight each, lbs.	2	2½	3	3½
Length, inches	5	5¼	6	6¼
Per pound	$0.50	.50	.40	.40
Weight each, lbs.	4	4½	5	
Length, inches	6½	7	7¼	
Per pound	$0.40	.40	.30	

HAND DRILLING HAMMERS.

No. CHD—Double Face, California Pattern.

Weight each, lbs.	3	3½	4	4½	5
Length, inches	5	5¼	5¾	6¼	6¾
Per pound	$0.50	.50	.50	.50	.40

STONE MASONS' HAMMERS.

Solid Forged Steel, Painted Red, with Polished, Hardened Face, and Polished Bit.

No. M Single Face, without Teeth.

Weight each, lbs.	3	3½	4	4½	5	5½
Length, inches	6½	6¾	7	7¼	7½	7¾
Per pound	$0.55	.55	.55	.55	.50	.50
Weight each, lbs.	6	6½	7	7½	8	
Length, inches	8⅜	8½	8⅝	8¾	8⅞	
Per pound	$0.50	.50	.50	.50	.50	

No. MT—Single Face, with Teeth.

Weight each, lbs.	3	3½	4	4½
Length, inches	6¼	6½	7	7¼
Per pound	$0.60	.60	.60	.60
Weight each, lbs.	5	5½	6	
Length, inches	7½	7¾	8	
Per pound	$0.55	.55	.55	

Solid Forged Steel, Oil Finish.

STONE SLEDGES.

With Hardened and Polished Face.

No. S—Single Face.

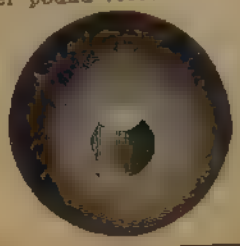
Weight each, lbs.	6	8	10	12
Length, inches	7	7½	8	8½
Per pound	$0.30	.30	.30	.30
Weight each, lbs.	14	16	18	20
Length, inches	9	9¼	9½	10
Per pound	$0.30	.30	.30	.30

BUSH HAMMERS.

With Hardened Toothed Faces.

Double Face.

Nos.	1B	2B
Weight each, lbs.	6¼	7¼
Length, inches	8½	8½
Diameter, inches	2	1¾
Number of Teeth (Coarse End)	36	132
Number of Teeth (Fine End)	81	144
Each	$8.25	7.25



MACADAM OR CRACKING HAMMERS.

Solid Forged Steel; Oil Finish; Hardened.

No. C—Round Pattern.

Weight each, lbs.	1¼	1½
Diameter, inches	2¾	3
Each	$0.95	1.15

Packed Loose.

MAULS.

Solid Forged Steel, with Hardened and Polished Faces.

RAILROAD SPIKE MAULS.

No. RS—Single Face; Tapering End; Oil Finished.

Weight each, lbs.	6	8	10
Length, inches	9½	10½	11¼
Per pound	$0.30	.30	.30

SHIP OR TOP MAULS.

No. ST—Single Face; Tapering End; Painted Red, with Polished Ends.

Weight each, lbs.	4	4½	5	5½	6
Length, inches	8¼	8½	8¾	9	9¼
Per pound	$0.42	.42	.42	.42	.42

No. BJ.

WOOD CHOPPERS' MAULS.

No. E.

Highest Grade Crucible Steel, Extra Tempered, Oil Finished; Hardened Face and Bit.

No. BJ—KEEN KUTTER BLACK JACK*, Oregon Pattern

Weight each, lbs.	7	8	9	10
Length, inches	7¾	8	8¼	8½
Per pound	$0.50	.50	.50	.50

Solid Forged Steel; Painted Red; Polished and Hardened Face and Bit.

No. E—STANDARD, Regular Pattern.

Weight each, lbs.	7	8	9	10
Length, inches	8½	8¾	8¾	9
Per pound	$0.36	.36	.36	.36

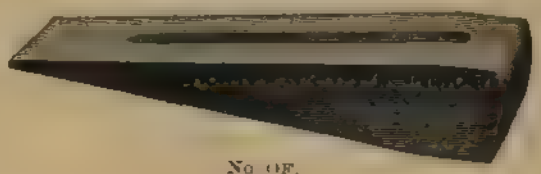
Solid Forged Steel, Oil Finished; Hardened Face and Bit.

No. D—STANDARD, OREGON PATTERN.

Weight each, lbs.	6	7	8	9	10
Length, inches	8¼	8½	8¾	9	10
Per pound	$0.36	.36	.36	.36	.36

Packed Loose

WEDGES.



No. OF.

WOOD CHOPPERS'

Solid Forged Steel, Hardened Head and Bit; Regular Fluted Pattern.

No. OF—STANDARD; Oil Finished.

Weight each, lbs.	3	3½	4	4½	5	Assorted 3 to 5
Width at Point, inches	2	2⅛	2¼	2¼	2⅜	2 to 2⅜
Length over all, inches	7¾	8 3/16	9	9¼	9¼	7¾ to 9¼
Per pound	$0.15	.15	.15	.15	.15	.15

No. RP—STANDARD; Painted Red; Axe Finish; Polished Bit.

Weight each, lbs.	3	3½	4	4½	5	Assorted 3 to 5
Width at Point, inches	1⅞	2¼	2 3/16	2¼	2⅜	1⅞ to 2⅜
Length over all, inches	7⅞	8½	9	9½	9½	7⅞ to 9½
Per pound	$0.20	.20	.20	.20	.20	.20

Straight Sizes Packed Loose; Assorted Sizes Packed about 50 lbs in a Wood Box.

TRADE MARKS
B. C. SIMMONS' *KEEN KUTTER*:
"ARKANSAS" AND "OZARK,"
REGISTERED.

WEDGES.

No. T.

No. BJ

WOOD CHOPPER'S.

Hardened Head and Bit; Oil Finished.

CALIFORNIA, TRUCKEE PATTERN.

No. T—STANDARD; Forged Bessemer Steel.

Weight each, lbs.	4	4½	5	5½
Width at Point, inches	2	2 3/16	2¼	2½
Length over all, inches	8⅜	9½	9½	10
Per pound	$0.25	25	25	.25
Weight each, lbs.	6	7	8	9
Width at Point inches	2½	2½	3	3
Length over all, inches	10½	11	11	12
Per pound	$0.25	25	25	.25

Packed in Kegs of about 250 lbs; Straight Sizes.

No. V—VERONA; Solid Forged Steel.

Weight each, lbs.	4	4½	5	5½
Width at Point, inches	1¾	1⅞	2	2
Length over all inches	8½	9	9⅞	10⅛
Per pound	$0.35	35	.35	.35
Weight each, lbs.		6	7	8
Width at Point, inches		2	2⅛	2¼
Length over all inches		10½	11	11
Per pound		$0.35	.35	.35

Packed in Boxes of about 100 lbs; Straight Sizes

OREGON PATTERN.

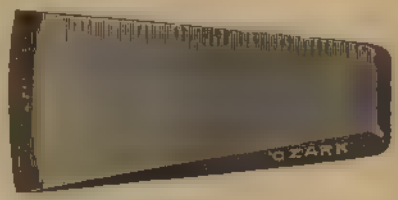
No. BJ—*KEEN KUTTER* BLACK JACK*; Forged Highest Grade Crucible Steel.

Weight each, lbs	4	5	6	7	8
Width at Point inches	3⅜	3½	4	4¼	4½
Length over all inches	8	8¼	8½	9¾	10
Per pound	$0.50	.50	.50	.50	.50

No. B—STANDARD; Solid Forged Steel.

Weight each, lbs.	4	5	6	7	8
Width at Point, inches	3¾	4	4	4¼	4½
Length over all, inches	8	8⅛	8⅞	9	9
Per pound	$0.36	36	.36	36	36

Packed in Kegs of about 250 lbs, Straight Sizes



Extra Quality Solid Forged Steel, Oil Finished.

WOOD CHOPPERS' OR TIE MAKERS'; Spread Point.

ARKANSAS*.

Weight each, lbs.	3	3½	4	4½
Width at Point, inches	2 3/16	2¼	2½	2½
Length over all, inches	6½	7½	7¾	8¼
Per pound	$0.20	.20	20	20

		Assorted.
Weight each, lbs.	5	3 to 4
Width at Point, inches	2½	2 1/16 to 2⅛
Length over all, inches	8¾	6½ to 8¾
Per pound	$0.20	20

STAVE MAKERS', Flared Point.

OZARK*.

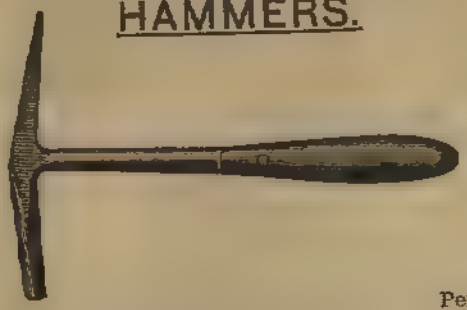
Weight each, lbs.	3	3½	4	4½
Width at Point inches	3¼	3¼	3½	3½
Length over all, inches	6¼	6¼	7	7
Per pound	$0.25	.25	.25	25

		Assorted.
Weight each, lbs.	5	3 to 4
Width at Point, inches	3¾	3¼ to 3¾
Length over all, inches	7½	6¼ to 7½
Per pound	$0.25	.25

Packed about 50 lbs. in a Wood Box; Either Straight or Assorted Sizes.

TRADE MARK: E. C. SIMMONS' KEEN KUTTER. REGISTERED

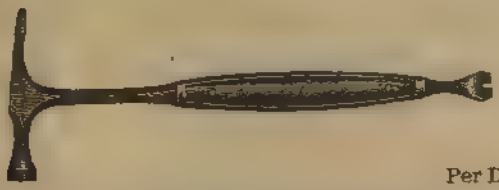
UPHOLSTERER'S HAMMERS.



Per Dozen

No. 58—Solid Cast Steel, Hardened Claw and Face, Polished Finish; Steel Handle, with Wood Grip; Length of Head 6½ inches; Riveted Inlaid Rosewood Grip 5½ inches Long; Length over all 10¼ inches; Weight per dozen about 10 lbs. $12.50

One-half Dozen in a Cardboard Box.

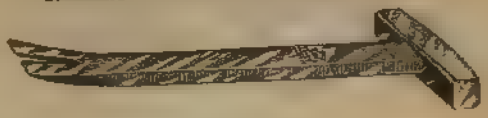


Per Dozen

No. 4—Malleable Iron, Hardened Face, Dull Nickel Finish; Malleable Claw Handle, with Riveted Inlaid Hardwood Grip 5½ inches Long; Length of Head 4 inches; Length over all 11 inches; Weight per dozen about 5 lbs. $2.50

Suitable also for Saddlers' Use.

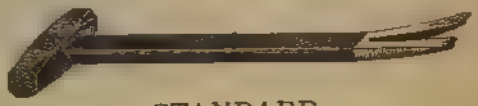
BOX HAMMERS OR CRATE OPENERS.



KEEN KUTTER*

Per Dozen

No. K—Nickel Plated; Highest Grade Crucible Forged Steel Head and Handle; Claw Handle; Octagon Head, Checkered on one Face, Plain on the other; Length of Head 2¾ inches; Length over all 9 inches; Weight per dozen about 12 lbs. $18.00



STANDARD.

Per Dozen

No. C—STEEL, OIL FINISHED; Forged Steel Claw Handle, with Converted Steel Head Welded on; One Face Checkered; Polished Claw; Length of Head 3 inches; Length over all 9⅛ inches; Weight per dozen about 13 lbs. $12.00

One-half Dozen in a Cardboard Box.

Per Dozen

No. D—CAST IRON, NICKEL PLATED; Claw Handle, and Round Head, with Plain Round Faces, all Cast in One Piece; Length of Head 2⅞ inches; Length over all 9 inches; Weight per dozen about 12 lbs. $6.00

One Dozen in a Cardboard Box.

BILL POSTERS' HAMMERS.

ROBERTSON'S HORSE SHOE MAGNET.

Forged Steel, Nickel Plated; without Handle; Horse Shoe Pattern; Magnetized; Hardened Faces.

Nos.	500	800
Length of Head, inches	4	4¾
Weight per dozen about, lbs.	4	6½
Per dozen	$20.00	25.00

One Dozen in a Cardboard Box.

HAMMER HANDLES.

Handles for Bill Posters' or Advertising Hammers; Select White Ash, Hand Made, with Oval Eye, Spring Neck and Octagon Grip.

No. PH -Plain.

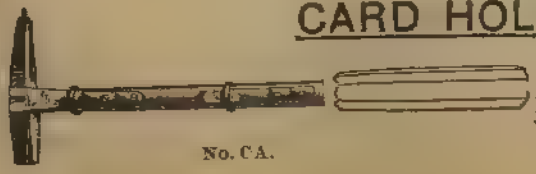
Length, inches	24	36
Weight per dozen about, lbs.	3	5
Per dozen	$5.00	6.00

Per Dozen

No. JH—JOINTED; in Two Sections; Length 36 inches; Weight per dozen about 7 lbs. $15.00

Packed Loose.

CARD HOLDING ATTACHMENT.



No. CA.

Per Dozen

No. CA—Stamped German Silver Card Holding and Tack Spring Attachments; Bright Finish; to Put on Handles Nos. PH and JH, for Holding Card to Set First Tack. $3.00

Packed Loose.

EYE HAMMERS.

SHORT STRIKING HAMMERS.

Solid Forged Steel, Oil Finish, with Hardened and Polished Face.

Oregon Pattern, Straight Face.

No. OSS.

Weight each, lbs.	3	3½	4	4½	5	6
Length, inches	4¼	4½	5	5¼	5½	5¾
Per pound	$0.40	.40	.40	.40	.30	.30
Weight each, lbs.	7	8	9	10	12	14
Length, inches	6	6¼	6½	6¾	7	7½
Per pound	$0.30	.30	.30	.30	.30	.30

Missouri Pattern, Rounding Face.

No. MRS.

Weight each, lbs.	6	6½	7	8
Length, inches	5¾	6	6½	7
Per pound	$0.30	.30	.30	.30

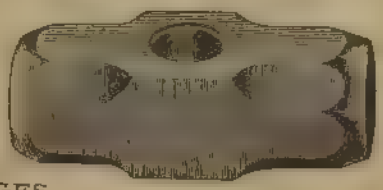
LONG STRIKING HAMMERS.

Nevada Pattern, Straight Face.

Solid Forged Steel, Oil Finished, with Hardened and Polished Face.

No. NLS.

Weight each, lbs.	3	3½	4	4½	5	6	7	7½	8	9	10	12	14
Length, inches	5½	5¾	6	6¼	6½	6¾	7	7⅛	7¼	7½	7¾	8½	8¾
Per pound	$0.40	.40	.40	.40	.30	.30	.30	.30	.30	.30	.30	.30	.30



BLACKSMITHS' SLEDGES

Solid Forged Steel, Oil Finish, with Hardened and Polished Face.

Single Face, Hardened Cross-Pein.

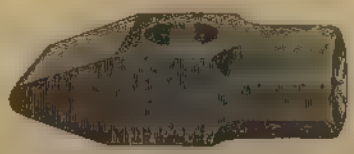
No. BS.

Weight each, lbs.	6	8	10	12
Length, inches	6¾	7	7¼	7½
Per pound	$0.30	.30	.30	.30
Weight each, lbs.	14	16	18	
Length, inches	8	8½	8¾	
Per pound	$0.30	.30	.30	

Double Face.

No. BD.

Weight each, lbs.	6	8	10	12
Length, inches	6½	7	7½	7¾
Per pound	$0.30	.30	.30	.30



BLACKSMITHS' HAND HAMMERS.

Single Face, Cross Pein.

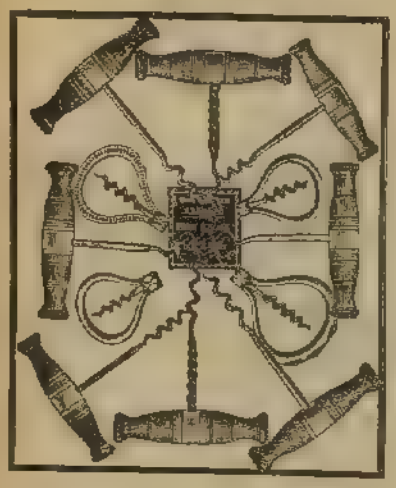
Solid Forged Steel, Oil Finish, with Hardened and Polished Face; Hardened Pein.

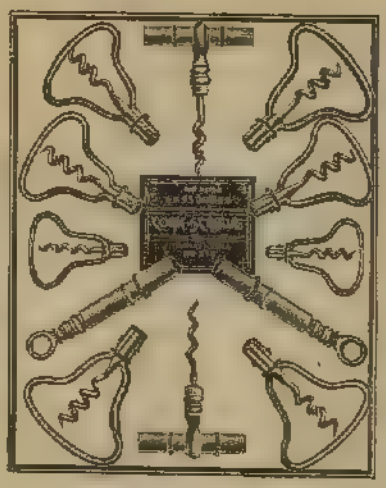
No. BH.

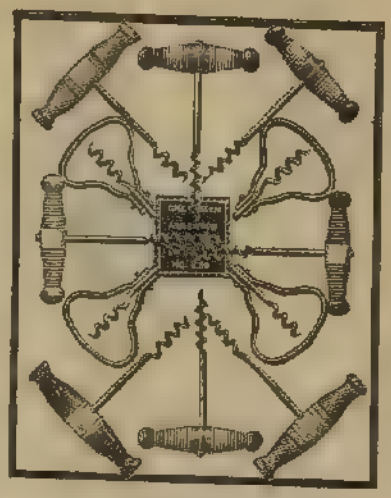
Weight each, lbs.	1½	2	2½	3	3½	4
Length, inches	4¼	4½	4¾	5	5¼	5½
Per pound	$0.50	.50	.50	.40	.40	.40

Packed Loose.

CORK SCREWS ON CARDS.







Per Card

No. 300—ASSORTED One Dozen on a Card, as shown in Cut; Nickel Plated Tempered Steel Screws; 1/3 Dozen with Nickel Plated Forged Steel Handles and Convex Twist Screws; 2/3 Dozen with Stained Hardwood Handles and Spiral Twist Screws; Length over all, assorted, 3¾, 4 and 5 inches; Weight per card about 1 lb. $5.00

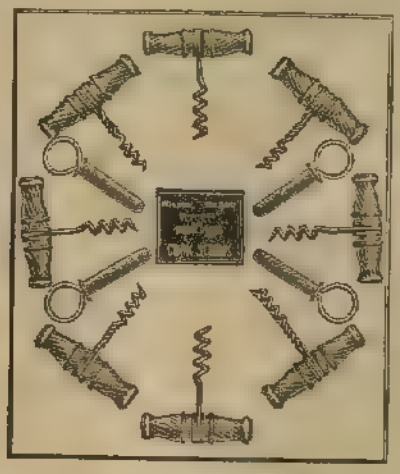
Per Card

No. 350—POCKET; ASSORTED One Dozen on a Card, as shown in Cut. Nickel Plated; Tempered Steel Spiral Screws; Steel Handles; Average Length over all, Closed, 2¼ inches; Weight per card about 1 lb.. $3.75

Per Card

No. 250—ASSORTED One Dozen on a Card, as shown in Cut; Nickel Plated Tempered Steel Screws; 1/3 Dozen with Nickel Plated Steel Handles and Spiral Twist Screws; 1/3 Dozen with Stained Hardwood Handles and Convex Twist Screws; 1/3 Dozen with Stained Hardwood Handles and Spiral Twist Screws; Length over all 4½ inches; Weight per card about 1 lb.. $3.00

Six Cards in a Cardboard Box.



Per Card

No. 100—ALWAYS READY; ASSORTED One Dozen on a Card, as shown in Cut; Nickel Plated Tempered Steel Spiral Screws; 2/3 Dozen with Varnished Hardwood Handles; 1/3 Dozen with Nickel Plated Wire Ring Handles; Length over all 4 inches. Weight per card about 1 lb $2.40

Per Card

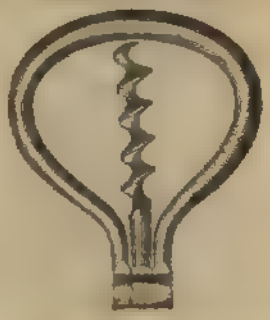
No. 200—MIDGET; ASSORTED One Dozen on a Card, as shown in Cut; Nickel Plated Tempered Steel Spiral Screws. 2/3 Dozen with Stained Hardwood Handles; 1/3 Dozen with Nickel Plated Wire Ring Handles; Length over all 3 inches; Weight per card about ¾ lb..... $1.80

Two Cards in a Cardboard Box.

POCKET CORK SCREWS.

Per Dozen

No. 15 — FOLDING POCKET; Nickel Plated; Tempered Steel Spiral Twist Screw; Steel Handle; Length over all, Closed, 2¾ inches; Weight per dozen about 1 lb. $3.25

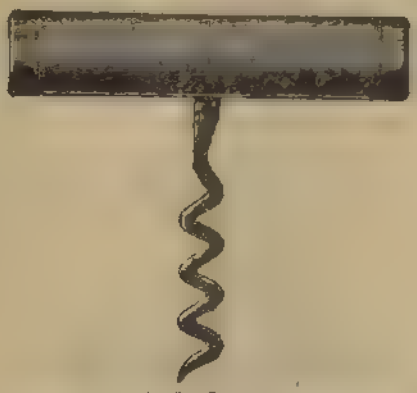


Per Dozen

No. 400 — FOLDING POCKET; Polished; Tempered Steel Convex Twist Screw; Steel Handle; Length over all, Closed, 2½ inches; Weight per dozen about 1 lb..... $1.75

No. 70 Closed.

No. 45 Closed.



No. 70 Open.

No. 45 Open.

Per Dozen

No. 70—FOLDING POCKET; Nickel Plated; Tempered Steel Spiral Twist Screw; Steel Tubular Handle; Handle Screwed together in Center; When Folded, Screw is encased in Handle; Length, Closed, 2¾ inches; Weight per dozen about 1 lb..... $3.00

Per Dozen

No. 45—FOLDING POCKET; Nickel Plated; Tempered Steel Spiral Twist Screw; Sheet Steel Tubular Handle; When Folded Screw is encased in Handle; Length, Closed, 3¼ inches; Weight per dozen about 1½ lbs..... $1.75

Per Dozen

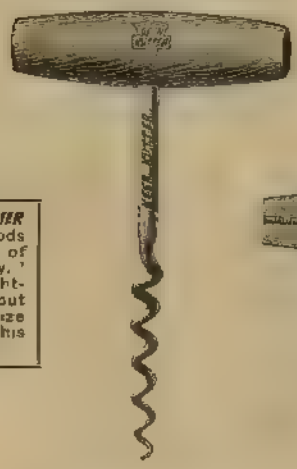
No. 35—Nickel Plated, Tempered Steel Spiral Twist Screw; Varnished Hardwood Handle; Shank passes around Handle twice in a Groove, Length over all, 4¼ inches, Weight per dozen about 1 lb..... $1.75

One Dozen in a Cardboard Box.

TRADE MARK
E. C. SIMMONS' *KEEN KUTTER*,
REGISTERED.

CORK SCREWS.

The Name *KEEN KUTTER* as Applied to Goods is the Synonym of "Highest Quality." The Millions of Delighted Users Throughout the World Recognize and Appreciate this fact.



Per Dozen

No. 10 *KEEN KUTTER**; Spiral Screw. Forged from Highest Grade Crucible Steel, Oil Tempered and Nickel Plated. Varnished Maple Wood Handle, Shank secured in Handle with Steel Pin, Length over all 5¼ inches $4.50

Per Dozen

No. 233—Nickel Plated, Tempered Steel, Convex Twist, Screw; Genuine Horn Handle; Shank Inserted in Handle and Riveted, Length over all 4 inches $9.00

Per Dozen

No. 1237—Nickel Plated, Tempered Steel, Convex Twist Screw; Polished Boxwood Handle, Shank extends through Handle, Riveted with Washer, Length over all 4½ inches, $2.50

One Dozen in a Cardboard Box; Weight per Dozen about 1 lb.

CORK SCREWS.

Per Dozen

No. 542—Nickel Plated, Tempered Steel Spiral Twist Screw, with Self-Puller, Wire Cutter and Bottle Decapper Attachments; Polished Boxwood Handle; Length over all 6 inches; Weight per dozen about 3 lbs . . . $9.00

Per Dozen

No. 1642—Nickel Plated, Tempered Steel Convex Twist Screw, with Self-Puller, Wire Cutter and Bottle Decapper Attachments; Polished Rosewood Handle; Length over all 6 inches; Weight per dozen about 3 lbs.....$10.00

One-half Dozen on an Easel Display Card.
One Dozen (2 Cards) in a Cardboard Box.

Per Dozen

No. 171 Nickel Plated, Tempered Steel Convex Twist Screw, with Self-Puller Attachment; Shank Passes through Handle, Riveted with Washer; Black Finish Hardwood Handle; Length over all 6 inches; Weight per dozen about 3 lbs $7.00

One Dozen in a Cardboard Box.

Per Dozen

No. 17 Nickel Plated, Tempered Steel Convex Twist Screw, with Self-Puller, Wire Cutter and Bottle Decapper Attachments; Varnished Hardwood Handle, secured with Pin; Length over all 5¾ inches; Weight per dozen about 3 lbs $5.00

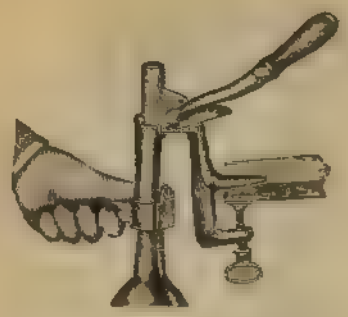
One in a Carton; One Dozen in a Cardboard Box

Per Dozen

No. 340—Nickel Plated, Tempered Steel Convex Twist Screw, with Self-Puller Attachment; Varnished Hardwood Handle; Length over all 5¾ inches; Weight per dozen about 2½ lbs. $3.00

One Dozen in a Cardboard Box.

LEVER CORK PULLERS.



Per Dozen

No. 29—RAPID; HEAVY NICKEL PLATED Cast Iron Frame, Lever and Bottle Clamp; Tempered and Polished Tool Steel Screw; Ebony Finish Hardwood Handle; Shank Extends through Handle and secured at End with Cap. Screwed on; Width of Table Clamp 2 inches; Bottle Clamp Lined with Corrugated Rubber to prevent breaking Neck of Bottle; Height over all 10½ inches; Weight per dozen about 78 lbs.....$60.00

One-twelfth Dozen in a Wood Box.

Per Dozen

No. 8—SAMSON; NICKEL PLATED Cast Iron Frame, Lever and Crank; Tempered and Polished Tool Steel Screw; Varnished Hardwood Handle, with Nickel Plated Stamped Steel Ferrule; Shank Screwed in Handle; Wire Cutting Hook on Front of Frame; Attached to Table with Three Screws; Height over all 7½ inches; Weight per dozen about 42 lbs....$42.00

One-twelfth Dozen in a Wood Box.

Per Dozen

No. 1—YANKEE; NICKEL PLATED Cast Iron Frame and Handle; Japanned Stamped Steel Head; Tempered and Polished Tool Steel Detachable Screw 2½ inches Long; Length of Handle 7½ inches; Length over all 1[illegible] inches; Weight per dozen about 26 lbs.....$15.00

One-twelfth Dozen in a Cardboard Box.

One Dozen in a Case.

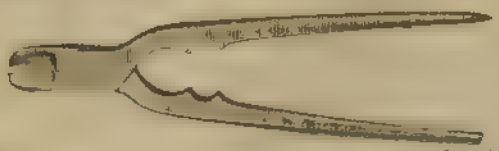
No. ES—Extra Screws for Samson Cork Pullers: Weight per dozen about ½ lb..... Per Dozen $4.50

One Dozen in a Cardboard Box.

CHAMPAGNE NIPPERS.

Jos. Rodgers & Sons. Per Dozen

No. 5544—Solid Steel Frame, Full Nickel Plated; Tempered Steel Convex Jaws Forged Steel Corkscrew White Bristle Brush; Length over all 7 inches; Weight per dozen about 4½ lbs. $43.75

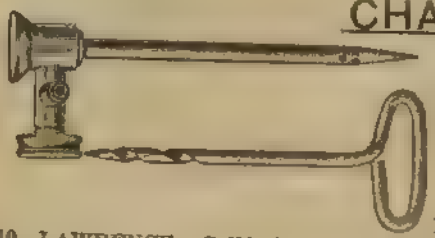


Per Dozen

No. 372—Solid Steel Frame, Full Nickel Plated; Tempered Steel Convex Jaws, Length over all 6¼ inches Weight per dozen about 3¼ lbs. $12.00

One-half Dozen in a Cardboard Box.

CHAMPAGNE TAPS.

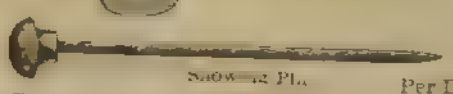


Per Dozen

No. 210—LAWRENCE; Solid Steel, Full Nickel Plated; Tubular Steel Pin, with Four Holes Near End; Forged Steel Gimlet for Boring Through Cork; Weight per dozen about 3¼ lbs. $18.00

One-twelfth Dozen in an Oak Box with Brass Hinges and Catch.

Showing Tap.



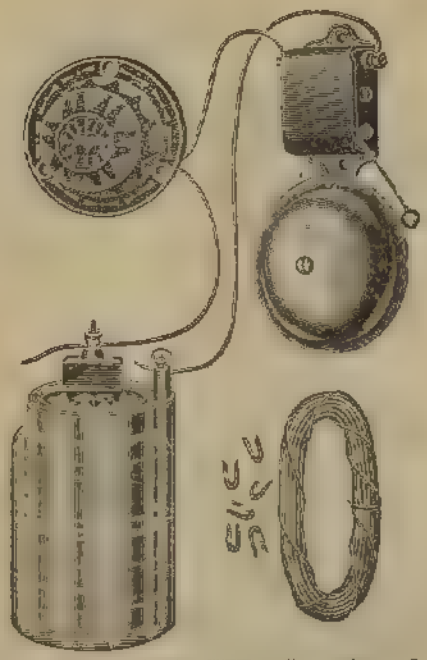
Showing Pin.

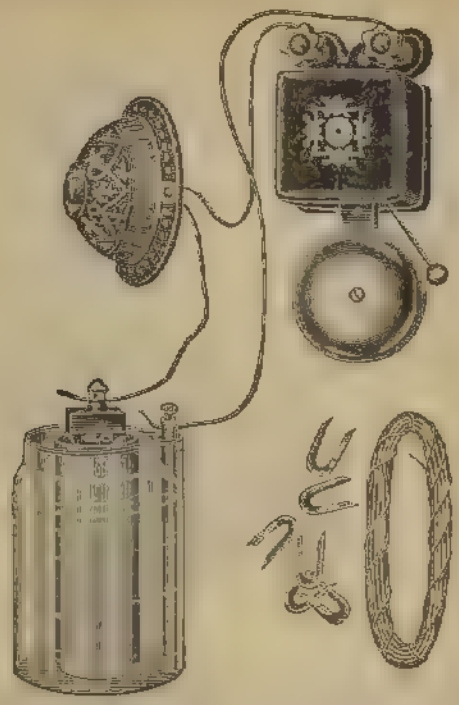
Per Dozen

No. 2100—Solid Steel, Full Nickel Plated: Steel Pin extends through Entire Length and is inserted when not in use; Length over all 4½ inches, Weight per dozen about 2¾ lbs. $15.00

One-twelfth Dozen in a Cardboard Box

ELECTRIC HOUSE OR DOOR BELLS.





Per Set

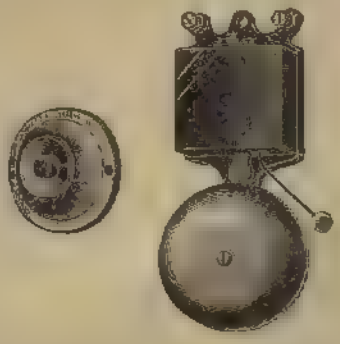
No. 1E—IN SETS COMPLETE; Comprises One 4 inch Nickel Plated Steel Bell, with Cast Iron, Japanned, Box; One Ornamental Cast Bronze, Old Copper Finish, Polished Round Push Button Plate, 2¾ inches Diameter, with Black Rubber Push Button; One Disque Leclanche Battery, Complete with Chemicals and 75 feet Insulated Wire; Weight per set about 8 lbs. $6 75

Per Set

No. X16—IN SETS COMPLETE; Comprises One 3 inch Nickel Plated Steel Bell, with Cast Iron, Japanned, Box; One Ornamental Cast Bronze No. 3 Finish, Round Push Button Plate 2¾ inch Diameter, with Black Rubber Push Button; One Disque Leclanche Battery, Complete with Chemicals and 75 feet Insulated Wire; Weight per set about 7½ lbs. $5.25

For Circuit over 500 feet an Additional Battery is required.
One Set in a Wood Box Complete with Screws, Staples and Directions

Showing Cut of Battery for Set No. 11



Showing Cut of Bell and Push Button for Sets Nos. 11 and D11.

Showing Cut of Battery for Set No. D11.

Per Set

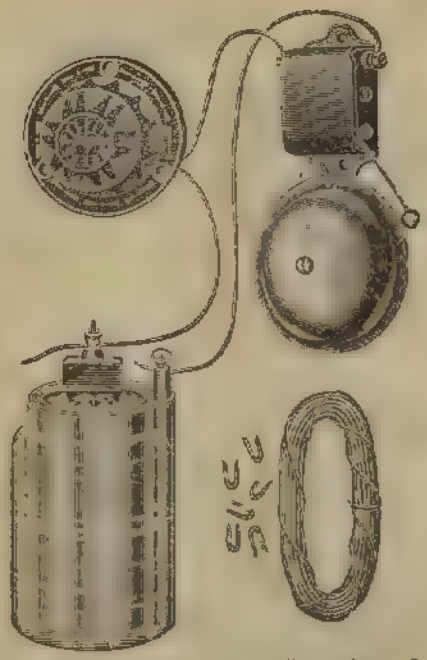
No. 11—IN SETS COMPLETE; Comprises One 3 inch Nickel Plated Steel Bell, with Cast Iron, Japanned, Box; One Plain Cast Bronze, Polished Push Button Plate, with Black Rubber Push Button; One Carbon Cylinder Battery, Complete with Chemicals and 50 feet of Insulated Wire; Weight per set about 8 lbs. $3.00

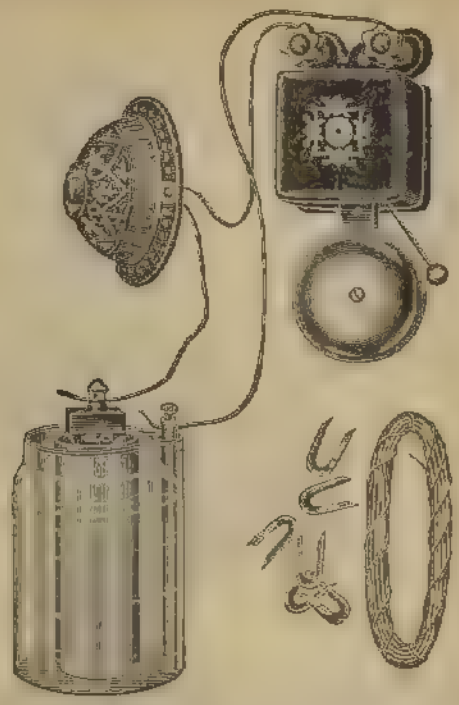
Per Set

No. D11 IN SETS COMPLETE; Comprises One 3 inch Nickel Plated Steel Bell, with Cast Iron, Japanned, Box; One Plain Cast Bronze, Polished Push Button Plate, with Black Rubber Push Button; One Dry Battery, with 50 feet of Insulated Wire. Weight per set about 5 lbs. $3.00

For Circuit over 300 feet an Additional Battery is required.
One Set in a Wood Box, Complete with Screws, Staples and Directions

ELECTRIC HOUSE OR DOOR BELLS.





Per Set

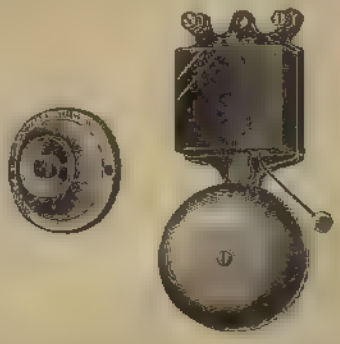
No. 1E—IN SETS COMPLETE; Comprises One 4 inch Nickel Plated Steel Bell, with Cast Iron, Japanned, Box; One Ornamental Cast Bronze, Old Copper Finish, Polished Round Push Button Plate, 2¾ inches Diameter, with Black Rubber Push Button; One Disque Leclanche Battery, Complete with Chemicals and 75 feet Insulated Wire; Weight per set about 8 lbs. $6 75

Per Set

No. X16—IN SETS COMPLETE; Comprises One 3 inch Nickel Plated Steel Bell, with Cast Iron, Japanned, Box; One Ornamental Cast Bronze No. 3 Finish, Round Push Button Plate 2¾ inch Diameter, with Black Rubber Push Button; One Disque Leclanche Battery, Complete with Chemicals and 75 feet Insulated Wire; Weight per set about 7½ lbs. $5.25

For Circuit over 500 feet an Additional Battery is required.
One Set in a Wood Box Complete with Screws, Staples and Directions

Showing Cut of Battery for Set No. 11



Showing Cut of Bell and Push Button for Sets Nos. 11 and D11.

Showing Cut of Battery for Set No. D11.

Per Set

No. 11—IN SETS COMPLETE; Comprises One 3 inch Nickel Plated Steel Bell, with Cast Iron, Japanned, Box; One Plain Cast Bronze, Polished Push Button Plate, with Black Rubber Push Button; One Carbon Cylinder Battery, Complete with Chemicals and 50 feet of Insulated Wire; Weight per set about 8 lbs. $3.00

Per Set

No. D11 IN SETS COMPLETE; Comprises One 3 inch Nickel Plated Steel Bell, with Cast Iron, Japanned, Box; One Plain Cast Bronze, Polished Push Button Plate, with Black Rubber Push Button; One Dry Battery, with 50 feet of Insulated Wire. Weight per set about 5 lbs. $3.00

For Circuit over 300 feet an Additional Battery is required.
One Set in a Wood Box, Complete with Screws, Staples and Directions

TRADE MARK: "DELMAR." REGISTERED.

DRY BATTERIES.

Dry Batteries are Ready for Instant Use, having No Glass Jars to break and No Solution to prepare.

DELMAR*.

Each

Extra Dry Batteries for No. D11 Bell; 6x2¾ inches; Weight each about 2 lbs $1.25

Packed Loose.

ELECTRIC BELL WIRE.

Per Pound

No. 18—Insulated Electric Bell Wire, Wound on Reels; 1000 feet on a Reel; Weight per Reel about 7½ lbs.... .... $1.00

IRON BOX ELECTRIC BELLS.

Each

No. 1831—3 INCH Nickel Plated Steel Bell; Cast Iron, Japanned Box; Binding Posts and All Parts held by Screws, are Practically Rigid and not liable to become loose; Adjustable for One or More Batteries; Weight each about 1 lb..... $0.65

No. 1832—4 INCH Nickel Plated Steel Bell; Otherwise same as No. 1831; Weight each about 1¼ lbs..... .75

One in a Cardboard Box

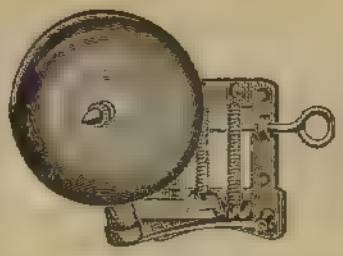
ALARM WHISTLES.

Per Dozen

No. 52—2x2½ inches; Tin, Nickel Plated, with Indicator; Weight per dozen about 2 lbs... $5.00

One Dozen in a Cardboard Box.

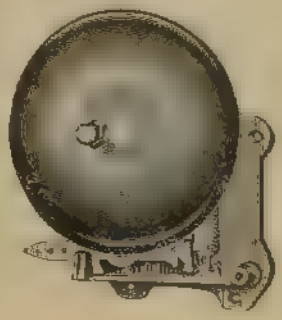
GONG BELLS.



Polished Bell Metal Gong; Extra Heavy Cast Iron Frame and Bell Post, Plain Brass Lever and Clapper, Heavy Brass Wire Coil Springs and Lever Pull.

No. 2—Higgin's Pattern, Single Trip.

Size of Bowl, inches.....	5	6	8	10
Weight per dozen about, lbs..	30	36	66	108
Per dozen	$25.00	34.00	60.00	90.00



Polished Bell Metal Gong; Japanned Cast Iron Frame and Bell Post, Plain Brass Lever and Clapper; Brass Wire Coil Springs, and Brass Lever Pull.

No. 1—Single Trip.

Size of Bowl, inches....	5	6	8	10	12
Wgt. per doz. about, lbs.	24	26	60	120	196
Per dozen	$25.00	34.00	60.00	90.00	160.00

Yankee Patent Alarm.

Per Dozen

No. 125—4 inch Cast Iron Bronzed Gong; Cast Iron, Japanned, Base and Striking Plate, Weight per dozen about 12 lbs. .. $5.00

Bronze Finish Steel Gong; Japanned Cast Iron Frame, Bell Post and Clapper; Brass Wire Spring.

No. A—Abbe's Pattern.

Size of Bowl, inches	4	5	6	8
Weight per dozen about, lbs...	15	30	34	54
Per dozen	$5.00	7.00	10.00	20.00

One-twelfth Dozen in a Cardboard Box.

DOOR BELLS.

Showing Push Button for Nos. 3622C and 3632C.

Showing Push Button for No. 1922C.

Showing Sectional View of New Departure Push Button Door Bell when Mounted on Door.

NEW DEPARTURE.
Can be used Either on Door or Casing.

Per Dozen

No. 3622CZ—Ornamental Wrought Bronze, OLD COPPER FINISH, POLISHED Push Button Plate 4¼x2¼ inches; Black Rubber Push Button; 3½ INCH BELL; Bell Metal Gong and Cast Iron Base; Bell and Base, Old Copper Finish, Polished; Weight per dozen about 13 lbs. $21.00

No. 1922C—Plain Cast Bronze, SAND BLAST, OLD COPPER FINISH Push Button Plate 3¾x1¾ inches; Black Rubber Push Button; 3½ INCH BELL; Bell Metal Gong and Cast Iron Base; Bell and Base, Old Copper Finish, Polished; Weight per dozen about 13 lbs. 21.00

No. 3632CZ—Ornamental Wrought Bronze, OLD COPPER FINISH, POLISHED Push Button Plate 4¼x2¼ inches; Black Rubber Push Button; 4 INCH BELL; Bell Metal Gong and Cast Iron Base; Bell and Base, Old Copper Finish, Polished; Weight per dozen about 19 lbs 30.00

New Departure Push Button Bells have Stroke Similar to an Electric Bell and Work with a Clock Movement. Each Working Part is as Carefully Made as that of the Best Clocks. The Bell is Wound Up by Turning the Gong, and No Care is Required beyond Winding Once or Twice a Year.

Showing Plate for No. 022C.

Showing Gong for No. 022C

Per Dozen

No. 022C—Ornamental Cast Iron, OLD COPPER FINISH, UNPOLISHED Turnkey and Plate 4¼x2¼ inches; THREE INCH Ornamental Cast Iron Gong; Cast Iron Base; Bell and Base Old Copper Finish, Unpolished; Weight per dozen about 12 lbs. $12.50

One Set in a Cardboard Box, Complete with Screws.

Turn and Plate for Bell No. 1302C.

Turn and Plate for Bell No. 3241.

Turn and Plate for Bells Nos. 1901 and 1902C.

Showing Sectional View of New Departure Rotary Door Bell when Mounted on Door.

ROTARY.

Per Dozen

No. 1302C—Ornamental Cast Bronze, OXIDIZED OLD COPPER FINISH Turn Key and Plate 4⅜x2¼ inches; 3⅜ inch Bell Metal Gong; Cast Iron Base; Gong and Base Old Copper Finish, Polished; Weight per dozen about 12 lbs. $20.00

No. 1902C—Cast Bronze, OLD COPPER, SAND FINISH Turn Key and Bevel Edge Plate 3¾x1¾ inches; 3⅜ inch Bell Metal Gong; Cast Iron Base; Gong and Base Old Copper Finish, Polished 20.00

No. 1901—Plain Cast BRONZE, POLISHED Turn Key and Bevel Edge Plate, 3¾x1¾ inches; 3⅜ inch Bell Metal Gong; Cast Iron Base; Gong and Base Nickel Plated, Polished 20.00

Weight per Dozen about 12 lbs.

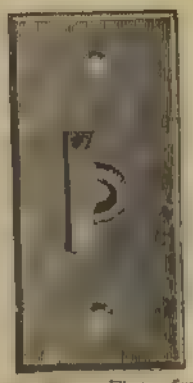
No. 3241CZ—Ornamental Wrought Bronze, OLD COPPER FINISH, POLISHED Turn Key and Plate, 3½x1¾ inches; 2⅞ inch Steel Gong, Cast Iron Base, Gong and Base Nickel Plated, Polished ..... [illegible]

Weight per Dozen about 5 lbs.

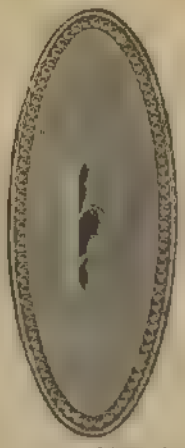
One in a Cardboard Box.

DOOR BELLS.

Showing Plate for No. 607CZ



Showing Plate for No. 608CZ.



Showing Plate for No. 609CZ

Showing Bell for Nos. 607CZ, 608CZ and 609CZ.

SIMPLEX ROTARY

Can be used Either on Door or Casing.

Per Dozen

No. 607CZ—Ornamental Wrought Bronze OLD COPPER FINISH POLISHED Rotary Plate 4 x 2 inches, 3 INCH STEEL BELL, Cast Iron Base Bell and Base Old Copper Finish, Polished; Weight per dozen about 7 lbs. $9.00

No. 608CZ—Wrought Bronze OLD COPPER FINISH POLISHED Rotary Plate 4x2 inches; 3 INCH STEEL BELL, Cast Iron Base Bell and Base, Old Copper Finish Polished Weight per dozen about 9 lbs. 9.00

No. 609CZ—Ornamental Wrought Bronze, OLD COPPER FINISH POLISHED Rotary Plate 5x2 inches; 3 INCH STEEL BELL Cast Iron Base Bell and Base Old Copper Finish, Polished; Weight per dozen about 9 lbs. 9.00

Showing Plate for No. 707CZ

Showing Plate for No. 708CZ

Showing Plate for No. 709CZ.

Showing Sectional View of Nos. 707CZ, 708CZ and 709CZ when Mounted on Door

DUPLEX PUSH BUTTON.

Duplex Bells Require no Winding.

Per Dozen

No. 707CZ—Ornamental Wrought Bronze OLD COPPER FINISH POLISHED Push Button Plate 4x2 inches, Black Enameled Push Button, 3½ inch Steel Bell Cast Iron Base, Bell and Base Old Copper Finish Polished Weight per dozen about 8 lbs. $12.00

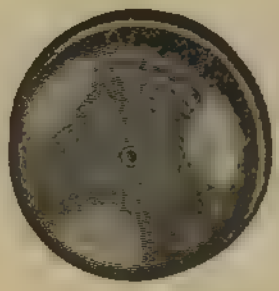
No. 708CZ—Wrought Bronze, OLD COPPER FINISH POLISHED Push Button Plate 4x2 inches Black Enameled Push Button, 3½ inch Steel Bell, Cast Iron Base, Bell and Base Old Copper Finish, Polished; Weight per dozen about 12 lbs. 12.00

No. 709CZ—Ornamental Wrought Bronze, OLD COPPER FINISH, POLISHED Push Button Plate, 5x2 inches Black Enameled Push Button, 3½ inch Steel Bell, Cast Iron Base Bell and Base, Old Copper Finish Polished, Weight per dozen about 12 lbs. 12.00

One-twelfth Dozen in a Cardboard Box, Complete with Screws.

DOOR BELLS.

Bell and Plate used in Sets No. 142CZ.



Bell used in Sets No. 142CZ and 143/OB.

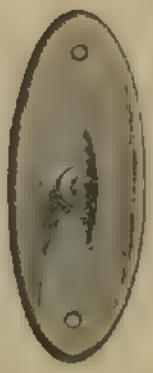


Plate used in Sets No. 143/OB.

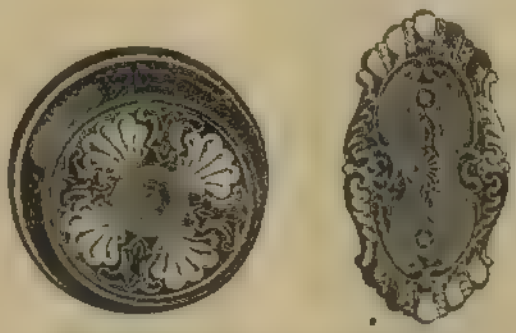
Per Dozen

No. 142CZ—Ornamental Wrought Bronze, OLD COPPER FINISH, POLISHED Rotary Plate 4x1⅝ inches; 3¼ inch Steel Bell; Steel Base; Bell and Base Old Copper Finish, Polished; Weight per dozen about 5 lbs..... $8.00

Per Dozen

No. 143 OB—Plain Wrought Bronze, OLD BRASS, DULL FINISH Rotary Plate 4x1⅝ inches; 3¼ inch Steel Bell; Steel Base; Bell and Base Old Brass, Dull Finish; Weight per dozen about 5 lbs..... $8 00

Showing Bell and Plate used in Set No. 145CZ.



Showing Bell and Plate used in Set No. 140CZ.

Per Dozen

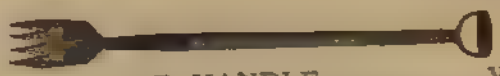
No. 145CZ—Plain Wrought Bronze, OLD COPPER FINISH, POLISHED Rotary Plate, 4¾x1¾ inches; 3 inch Ornamental Cast Iron Bell; Ornamental Cast Iron Base; Bell and Base Old Copper Finish, Unpolished; Weight per dozen about 5 lbs..... $8.00

Per Dozen

No. 140CZ Ornamental Wrought Bronze, OLD COPPER FINISH, POLISHED Rotary Plate 3¾x1⅞ inches, 3¼ inch Ornamental Steel Bell; Plain Steel Base; Bell and Base Old Copper Finish, Polished Weight per dozen about 10 lbs..... $8 00

One-twelfth Dozen in a Cardboard Box, Complete with Screws.

ICE SHAVERS.



D HANDLE. WOOD'S. LONG HANDLE.

Tempered and Polished Tool Steel Blade; Four Teeth, Plain Hardwood Handle fitted into Socket.

Malleable D-Handle with Wood Grip.

Each

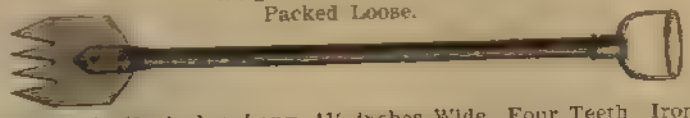
No. 652—Blade 7½ inches Long, 4¾ inches Wide; Length over all 3½ feet..... $2.25

Long Handle.

Each

No. 650—Blade 7½ inches Long, 4¾ inches Wide; Length over all 3 feet, 11 inches..... $2.25

Weight Each about 4 lbs.
Packed Loose.



Each

No. 50—Tempered Tool Steel Blade 6¼ inches Long 4½ inches Wide, Four Teeth Iron Tube Handle with Malleable Iron D Top and Wood Grip Handle attached to Blade with Two Heavy Rivets, Length over all 3 feet; Weight each about 5 lbs. $2.00

Used to cut Ice into fine pieces for Restaurant or Bar use.
One-half Dozen in a Crate.

ICE AXES.

Tempered and Polished Tool Steel Bit and Hook, Soft Steel Body, Painted Red, Plain Hardwood Handle.

No. 604.

No. 605.

No. 607.

No. 610.

WOOD'S.
Handles 30 inches Long.

Per Dozen

No. 604—BOSTON PATTERN Square Edge, Blade 1¾ inches Wide, with Hook $20.00

No. 605—CHICAGO PATTERN; Round Edge; Blade 2½ inches Wide, with Hook 20.00

Weight per Dozen with Handles about 48 lbs.

Per Dozen

No. 607—NEW YORK PATTERN; Square Edge; Blade 3 inches Wide, WITH HOOK $20.00

No. 610—PHILADELPHIA PATTERN, Round Edge Blade 2⅞ inches Wide WITHOUT HOOK 20.00

No. 611—PHILADELPHIA PATTERN Round Edge; Blade 2⅞ inches Wide, WITH HOOK 20.00

Weight per Dozen with Handles about 34 lbs.

No. 615

No. 620.

No. 625

SOUTHERN PATTERN.

Per Dozen

No. 615—ROUND EDGE; Heavy; Blade 2½ inches Wide, with Hook; Handle 22 inches Long..$18.00

Weight per Dozen with Handles about 42 lbs.

Per Dozen

No. 620—SQUARE EDGE MEDIUM BLADE 2¼ inches Wide with Hook; Handle 16 inches Long $16.00

Weight per Dozen with Handles about 30 lbs.

No. 625—SQUARE EDGE LIGHT, BLADE 2 inches Wide, with Hook, Handle 16 inches Long 15.00

Weight per Dozen with Handles about 24 lbs.

NOTE.—These Axes are used for splitting cakes into pieces suitable for retailing

Packed Loose.

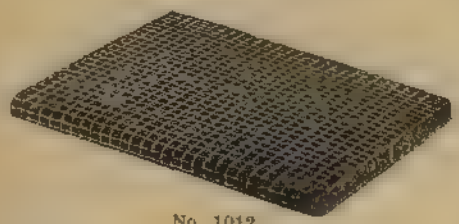
ICE BREAKERS.

Each

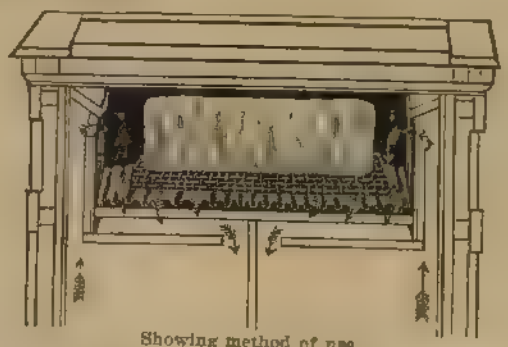
No. 2—GALVANIZED Cast Iron Frame and Hopper; Capacity 4 lbs. of Ice; Oblong Hoppers 5½ inches by 7 inches; Depth 4 inches. Galvanized Sheet Iron Can for receiving Ice 5¼ by 7 inches. Depth 6 inches. Length of Crank 8 inches; Height over all 14 inches; Weight each about 22 lbs. $6.00

One in a Case

THE SAVIN ICE PAD.



No. 1012.



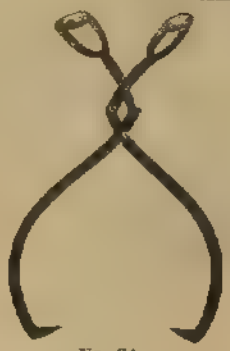
Showing method of use

FELT PAD, Chemically Treated and Securely Bound with Tinned Wire Mat. The Pad is Specially Prepared, **and as soon as it gets damp from the melting of the ice the Chemicals Reduce the Temperature about Two Degrees and Prevent the Ice from Melting Rapidly.** It is Odorless and **there is nothing injurious in the Pad; Will Reduce the Consumption of Ice from 1" to 33⅓%. Cleaned by placing under a stream of water; Prevents** Formation of Slime on the Sides and Bottom of Box. **It is necessary when using Pad to leave one inch margin** on all sides for circulation. **Directions for using accompany each Pad.**

Nos.	1012	1014	1214	1218	1224
Size, inches	10x12	10x14	12x14	12x18	12x24
Weight per dozen about, lbs.	12	15	18	24	30
Per dozen	$8.00	9.00	10.80	13.80	18.00

ICE TONGS.

Nos. 12 and 18.



No. 24.

Nos. 1, 2, 3, 4W and 5W.

Forged from Wrought Steel, Oil Tempered Points, Natural Finish; Heavy Rivets at Joints.

With Double Action Joints.

Nos.	12	18	24
Size	Family	Loading	Loading
Span, inches	12	18	24
Weight per dozen about, lbs.	11	26	45
Per dozen	$12.00	18.00	24.00

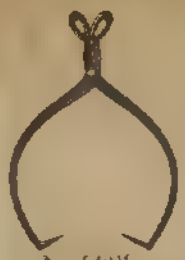
NOTE:—No. 24 has Hardwood Grips.

Nos.	1	2	3
Size	Family	Retailers	Loading
Span, inches	14	17	20
Weight per dozen about, lbs.	30	[illegible]	48
Per dozen	$23.00	27.00	32.00

Nos.	4W	5W
Size	Loading	Loading
Span, inches	24	26
Weight per dozen about, lbs.	56	62
Per dozen	$37.00	48.00

Packed Loose.

ICE TONGS.



No. 540M

WOOD'S.

Boston Pattern.

Forged From Tool Steel; Tempered Points; Heavy Rivet at Joint.

Swelled Grips; Painted Red.

Nos.	540F	540/8	540M
Size	Family	Small	Medium
Span inches	13	14½	16½
Weight per dozen about, lbs.	34	39	46
Per dozen	$15.00	16.00	17.00

Nos	540L	540E
Size	Loading	Extra Large
Span, inches	24	26
Weight per dozen about, lbs.	62	68
Per dozen	$19.00	20.00

Per Dozen

No. 8—FAMILY SIZE; Malleable Iron Automatic Opening Grip, Riveted to Steel Arms, with Tempered Points; Japanned Finish Throughout; Span 11 inches; Weight per dozen about 18 lbs. $18.00

No. 542/16½.

WOOD'S.

Boston Pattern.

Forged From Tool Steel; Tempered Points; Heavy Rivet at Joint.

Hollow Handle; Extra Large Hollow Grips; Painted Black.

Nos.	542/13	542/14½	542/16½
Size	Family	Small	Medium
Span, inches	13	14½	16½
Weight per doz. about, lbs	34	41	46
Per dozen	$19.00	20.00	21.00

No. 550/10.

WOOD'S.

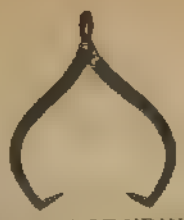
Cincinnati or Chain Pattern.

Forged from Tool Steel, Natural Finish; Tempered Points; Heavy Rivet at Joint; Round Grip, Two-Link Chain at each end of Grip.

Nos.	550/10	550/12	550/15
Size	Small	Family	Medium
Span, inches	10	12	15
Weight per dozen about, lbs.	24	29	34
Per dozen	$12.00	12.50	13.00

Packed Loose.

Tool Steel; Tempered Points; Painted Red.



WOOD'S

Each

No. 570—SINGLE POINT LOWERING, with Ring; Span 24 inches, Length over all 20 inches, Weight each about 5½ lbs. $2.00

No. 565.

Tool Steel, Tempered Points; Painted Red.

No. 561.

Per Dozen

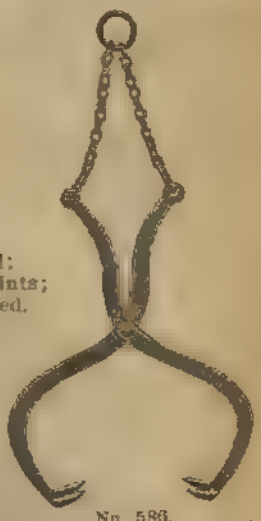
No. 565—DRAG OR STOWING; Solid Handles; Span 33 inches; Length over all 33½ inches; Weight per dozen about 84 lbs. $21.00

No. 561—EASTERN EDGING-UP; Solid Handles; Span 25 inches; Length over all 20 inches; Weight per dozen about 48 lbs. $18.00

Edging-Up Tongs are used by Packers who Edge-Up their Ice when Stowing in the House. Drag or Stowing Tongs are used in some localities for Stowing Ice in Houses. They are made with Long Handles to enable the user to obtain a convenient position.

No. 584.

Cast Steel; Tempered Points; Painted Red.



No. 586.

Each

No. 584—ADJUSTABLE CLAW HOISTING; Span 30 inches, Length over all 52 inches, Weight each about 21½ lbs. $6.00

No. 586—SOLID CLAW HOISTING; Span 30 inches; Length over all 55 inches; Weight each about 18½ lbs. 5.00

TRADE MARKS
R. C. SIMMONS KEEN KUTTER, CHIPAWAY, REGISTERED.

ICE PICKS.

Are used by many Retail Dealers on account of the Saving in Waste when breaking ice

KEEN KUTTER*

Per Dozen

No. 415—Highest Grade Crucible Forged Steel Blade, Oil Tempered, Needle Point, Polished; Rosewood Finish Hardwood Handle; Nickel Plated Steel Ferrule; Diameter of Blade 7/32 inch; Length of Blade 4⅞ inches; Length over all 7½ inches; Weight per dozen about 1½ lbs. $4.00

KEEN KUTTER BLUE BRAND*

Per Dozen

No. 315—Highest Grade Crucible Forged Steel Blade, Oil Tempered, Needle Point, Polished and Blued Finish; Rosewood Finish Hardwood Handle; Nickel Plated Steel Ferrule; Diameter of Blade 5/16 inch; Length of Blade 6½ inches; Length over all 9¼ inches; Weight per dozen about 3½ lbs.. ... . $4.80

One Dozen in a Wood Box.

CHIPAWAY*

Per Dozen

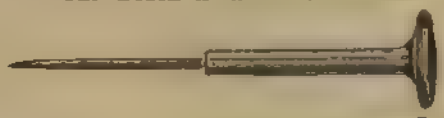
No. 215—Special Crucible Forged Steel Blade, Oil Tempered, Needle Point, Polished; Polished Hardwood Handle; Nickel Plated Steel Ferrule; Diameter of Blade 7/32 inch; Length of Blade 6½ inches; Length over all 9¼ inches; Weight per dozen about 3 lbs.... $4.00

One Dozen in a Wood Box.

Per Dozen

No. 25—Two Tempered and Polished Tool Steel Detachable Blades, Needle Points; Nickel Plated Cast Iron Handle; Blades Secured in Handle with Steel Set Screw; Diameter of Blades ⅛ inch; Length of Blades 2 inches; Length over all 5 inches; Weight per dozen about 6½ lbs..... $3.50

One-twelfth Dozen in a Carton.



Per Dozen

No. 104—Tempered and Blued Finish Tool Steel Blade, Needle Point; Nickel Plated Cast Iron Handle; Blade Firmly Screwed in Handle; Diameter of Blade ⅛ inch; Length of Blade 4 inches; Length over all 7½ inches; Weight per dozen about 8 lbs. $5.00

Per Dozen

No. 40—Forged Steel Blade, Diamond Point, Polished; Plain Finish Hardwood Handle, with Heavy Nickel Plated Malleable Iron Band; Steel Ferrule; Diameter of Blade 5/16 inch; Length of Blade 5¾ inches; Length over all 9¾ inches; Weight per dozen about 7 lbs.... $5.00

Per Dozen

No. 20—Forged Steel Blade, Diamond Point, Polished; Plain Finish Hardwood Handle, with Heavy Nickel Plated Malleable Iron Cap and Band; Steel Ferrule; Diameter of Blade ¼ inch; Length of Blade 4¾ inches; Length over all 8 inches; Weight per dozen about 6 lbs. $3.00

Per Dozen

No. 10—Forged Steel Blade, Diamond Point Heavy Cast Iron Handle, Japanned Finish Throughout; Diameter of Blade ¼ inch; Length of Blade 4 inches; Length over all 5½ inches; Weight per dozen about 6½ lbs. $1.50

One Dozen in a Cardboard Box.

Per Dozen

No. 903—Forged Tool Steel Blade, Round Point, Polished; Japanned Cast Iron Sliding Handle; Diameter of Blade ¼ inch; Length of Blade, extended, 7¼ inches; Length of Handle 4½ inches; Length over all, closed, 8¾ inches; extended 11½ inches; Weight per dozen about 8 lbs..... .. .. $2.50

One-half Dozen in a Cardboard Box.

Per Dozen

No. 1—Forged Steel Blade, Diamond Point, Polished; Varnished Hardwood Handle; Brass Ferrule; Diameter of Blade 3/16 inch; Length of Blade 4½ inches; Length over all 7½ inches; Weight per dozen about 1½ lbs..... $1.35

One Dozen in a Cardboard Box.

ICE CHIPPERS.

Extra Heavy Forged Tool Steel, Tempered and Polished Blade; Rosewood Finish Hardwood Handle; Brass Ferrule.

Per Dozen

No. 1400—Width of Blade at Point 3 inches; Length of Blade 6½ inches; LENGTH OVER ALL 14½ INCHES; Weight per dozen about 13 lbs. $10.00

No. 2200—Width of Blade at Point 3 inches; Length of Blade 10 inches; LENGTH OVER ALL 22 INCHES; Weight per dozen about 19 lbs 17.00

One-quarter Dozen in a Cardboard Box.

Stamped Sheet Steel, Tempered and Polished Blade, Oil Finish Hardwood Handle; Stamped Steel Ferrule.

Per Dozen

No. 800—Width of Blade at Point 2¼ inches; Length of Blade 5 inches; LENGTH OVER ALL 9¼ INCHES; Weight per dozen about 4 lbs. $3.50

One Dozen in a Cardboard Box.

No. 1000—EXTRA HEAVY BLADE; Width of Blade at Point 2⅝ inches; Length of Blade 6 inches; LENGTH OVER ALL 10 INCHES; Weight per dozen about 6 lbs $5.00

One-half Dozen in a Cardboard Box.

Per Dozen

No. 600—Stamped Sheet Steel, Tempered and Nickel Plated Blade; Stamped Steel Ferrule; Oak Finished Hardwood Handle, with Nickel Plated Malleable Iron Cap and Ring; Width of Blade at Point 2¼ inches; Length of Blade 4¾ inches; Length over all 10¼ inches; Weight per dozen about 17 lbs $8.00

Per Dozen

No. 700—Stamped Sheet Steel, Tempered and Polished Blade; Stamped Steel Ferrule; Oak Finished Hardwood Handle, with Nickel Plated Malleable Iron Cap and Ring; Width of Blade at Point 2 inches; Length of Blade 3¾ inches; Length over all 8 inches; Weight per dozen about 11 lbs. $6.00

Per Dozen

No. 900—Stamped Sheet Steel, Tempered and Polished Blade; Japanned Cast Iron Handle; Width of Blade at Point 2 inches; Length of Blade 3⅝ inches; Length over all 7 inches. Weight per dozen about 15 lbs. $4.00

One Dozen in a Cardboard Box.

ICE SHAVES.

GEM PATTERN.

Per Dozen

No. G—Tinned Cast Iron Box and Hinged Cap; Adjustable Polished Steel Knife, secured with Screw at Back; Width of Blade 1¾ inches; Length over all 6¼ inches; Height 2¼ inches; Weight per dozen about 23 lbs... $6.00

BRIGHTON.

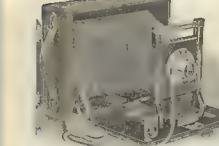
Per Dozen

No. 110—Tinned Cast Iron Bowl, with Hinged Cap; Tinned Cast Iron Handle; Tinned Tool Steel Blade with Teeth; Width of Blade 1½ inches; Width of Bowl 3⅝ inches; Length over all 7½ inches; Height 2 inches; Weight per dozen about 13 lbs. $3.00

NOTE—The Cover is so arranged that by a turn of the thumb the contents are discharged

One half Dozen in a Cardboard Box.

1908 SENECA CAMERAS—List Prices



Seneca No. 1 and No. 2

The Seneca No. 1 and No. 2 were designed to meet the requirements hitherto unprovided for, and embrace features that make them distinctly popular among those desiring a compactly equipped instrument at an extremely low price.

SPECIFICATIONS

Dimensions—In 4x5 size, 9¾x4¾x2¾ inches, in 5x7 size, 9¾x5¾x2¾ inches.

Camera Box—Ebony finish, corners dovetailed and covered with seal grain leather.

Camera Bed—Solid mahogany, ebony finish attached to Camera with improved nickel plated plane hinge.

Metal Parts—Brass, handsomely nickel plated.

Bellows—Black Russia leather lined with gossamer cloth.

SPECIAL FEATURES.

Front—Rising and falling.

Back—Spring actuated ground glass panel for focusing.

Clamp—Automatic press-button.

Finder—Reversible, metal hooded.

Tripod Sockets—Two.

Shutter—Seneca Duo, with bulb and tube attachment

Lens—Seneca Single Achromatic, fitted to Seneca No. 1. Seneca Rapid Rectilinear, fitted to Seneca No. 2

Camera Carrying Case. Double Adjustable Plate Holder. Manual in Photography Instruction Book.

Price Complete, Seneca No. 1, 4x5	$11.50
Price Complete, Seneca No. 1, 5x7	17.75
Price Complete, Seneca No. 2, 4x5	13.75
Price, Complete, Seneca No. 2, 5x7	19.75
Extra plate holders, size 4x5	1.00
Extra plate holders, size 5x7	1.25

Seneca No. 3

The Seneca No. 3 is built upon very strong and rigid lines, possessing lightness and compactness which has made the Seneca Cameras famous.

SPECIFICATIONS

Dimensions—In 4x5 size, 9x5¾x2¾ inches; in 5x7 size, 8¾x6¾x2¾ inches.

Camera Box—Ebony finish, corners dovetailed and covered with seal grain leather.

Camera Bed—Solid mahogany, ebony finish, attached to Camera with improved nickel plated plane hinge.

Metal Parts—Brass, handsomely nickel plated.

Bellows—Black Russia leather, lined with gossamer cloth

SPECIAL FEATURES.

Front—Rising and falling.

Back—Removable and spring actuated ground glass panel for focusing.

Clamp—Automatic, press-button.

Rack and Pinion—For fine focusing.

Finder—Reversible, metal bound and hooded.

Tripod Sockets—Two.

Shutter—Seneca Duo, with bulb and tube attachment

Lens—Seneca Rapid Rectilinear.

Camera, Carrying Case. Double Adjustable Plate Holder. Manual in Photography. Instruction Book.

Price Complete, 4x5	$20.40
Price Complete, 5x7	26.80
Extra plate holders, size 4x5	1.00
Extra plate holders, size 5x7	1.25

Seneca No. 3

This is one of the most popular styles of cameras manufactured today. It was designed to meet the demands of a first-class instrument in a compact form at a popular price, and as such it has attained this distinction

SPECIFICATIONS.

Dimensions in 4x5 size, 8x5¾x2¾ inches; in 5x7 size, 8¾x6¾x2¾ inches.

Camera Box—Ebony finish, corners dovetailed and covered with seal grain leather.

Camera Bed—Solid mahogany, ebony finish, attached to camera with improved nickel plated plane hinge.

Metal Parts—Brass, handsomely nickel plated.

Bellows—Black Russia leather, lined with gossamer cloth.

SPECIAL FEATURES

Front—Rising and falling.

Back—Removable and spring actuated ground glass panel for focusing.

Clamp—Automatic, press-button.

Finder—Reversible, metal bound.

Tripod Sockets—Two.

Shutter—Seneca Duo, with bulb and tube attachment.

Lens—Seneca Rapid Rectilinear.

Camera, Carrying Case. Double Adjustable Plate Holder. Manual in Photography Instruction Book.

Price Complete, 4x5	$17.55
Price Complete, 5x7	23.15
Extra plate holders, size 4x5	1.00
Extra plate holders, size 5x7	1.25

Seneca No. 4.

We have found this to be a most popular style of camera

SPECIFICATIONS

Dimensions—In 4x5 size, 8x5¾x2¾ inches. In 5x7 size, 8¾x6¾x2¾ inches.

Camera Box—Ebony finish, corners dovetailed and covered with seal grain leather

Camera Bed—Solid mahogany, ebony finish, attached to Camera with improved nickel plated plane hinge.

Metal Parts—Brass, handsomely nickel plated.

Bellows—Black Russia leather, lined with gossamer cloth

SPECIAL FEATURES.

Front—Rising and falling.

Back—Removable and spring actuated ground glass panel for focusing.

Clamp—Automatic, press-button.

Rack and Pinion—For fine focusing

Finder—Reversible, metal bound and hooded

Tripod Sockets—Two.

Shutter—Seneca Duo, with bulb and tube attachment

Lens—Seneca Rapid Rectilinear.

Camera, Carrying Case. Double Adjustable Plate Holder. Manual in Photography Instruction Book.

Price Complete, 4x5	$17.55
Price Complete, 5x7	23.80

Seneca No. 6

Style A and Style B, Made in Two Sizes.

It is made in two styles

SPECIFICATIONS.

Dimensions—In 4x5 size, 8¾x6¾x3¾ inches; in 5x7 size, 8¾x6¾x3¾ inches; lens board 4x5, 2¾x2¾; 5x7, 2¾x3¾.

Camera Box—Ebony finish, corners dovetailed and covered with walrus grain leather.

Camera Bed—Solid Mahogany, Ebony finish, attached to camera with improved nickel plated plane hinge.

Metal Parts—Brass, handsomely nickel plated.

Bellows—Black Russia leather, lined with gossamer cloth

SPECIAL FEATURES.

Focal Capacity—4x5, 8 inches; 5x7, 10½ inches. With rack and pinion, 4x5, 9 inches; 5x7, 11¾ inches.

Front—Rising and falling.

Back—Reversible, with single release, spring actuated ground glass panel for focusing.

Finder—Brilliant, reversible, metal bound and hooded.

Tripod Sockets—Two.

Shutter—Seneca Duo, with bulb and tube attachment.

Lens—Seneca Rapid Rectilinear. Lens Board Removable.

Camera, Carrying Case. Double Adjustable Plate Holder. Manual in Photography. Instruction Book

PRICES COMPLETE.

Style	4x5	5x7
A Seneca No. 6, fitted with lens		
Shutter, Rapid Rectilinear Lens	$16.90	$23.15
B Seneca No. 6, fitted with Duo Shutter Rapid Rectilinear Lens	20.00	27.35

NOTE—A rack and pinion for focusing will be attached to the above styles for $1.00 extra

Extra plate holders, size 4x5	$1.00
Extra plate holders, size 5x7	1.25

Seneca No. 7.

Perfect in design and compact in form. This instrument has obtained a world wide reputation for an all-around business camera.

SPECIFICATIONS.

Dimensions—In 4x5 size, 6x6x3 inches; in 5x7 size, 8¾x8¾x3 inches.

Camera Box—Ebony finish, corners dovetailed and covered with walrus grain leather.

Camera Bed—Solid mahogany, ebony finish attached to Camera with improved nickel plated plane hinge.

Metal Parts—Brass, handsomely nickel plated

Bellows—Black Russia leather, lined with gossamer cloth

SPECIAL FEATURES.

Focal Capacity—4x5, 10 inches; 5x7, 12½ inches

Front—Rising and falling.

Rack and Pinion—For focusing.

Clamp Automatic, press-button.

Swing—Back and bed.

Back—Reversible, with single release, spring actuated ground glass panel for focusing.

Finder—Brilliant, reversible, metal bound and hooded

Tripod Sockets—Two

Shutter—Seneca Duo, with bulb and tube attachment

Lens—Seneca Symmetrical.

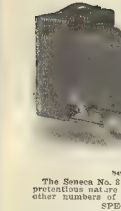
Lens Board—Removable.

Dimensions Lens Board—4x5, 2¾x3¾; 5x7, 2¾x3¾.

Camera, Carrying Case. Double Adjustable Plate Holder Manual in Photography. Instruction Book

Price Complete, 4x5	$27.55
Price Complete, 5x7	36.30

SENECA CAMERAS List Prices



Seneca No. 8.

In this instrument the camera binding art finds its highest exponent and possesses distinguishing characteristics and special features that command attention at once of not only the beginner but the far advanced amateur photographer. There are no difficulties which confront the photographer which this instrument will not satisfactorily meet.

The rear combination of the lens may be used alone, which nearly doubles the size of the image, or the rear combination may be removed and the front substituted, which gives a still larger image.

For copying or other work that requires the use of a long focus lens the instrument is specially suited. It has an automatic double action rack and pinion in front of the double extension bed. By means of a supplementary bed, very short or wide angle lenses can be used with equal facility. The main bed drops by detaching the side arms, and the supplementary bed, which can be instantly adjusted supports the front. This bed also has rack and pinion for accurate focusing.

Seneca No. 8.

The Seneca No. 8 embraces features of a more pretentious nature than are to be found in the other numbers of the Seneca series described.

SPECIFICATIONS.

Dimensions—In 4x5 size, 6x6x3 inches; in 5x7 size, 8¼x8¼x3 inches, in 6½x8½ size, 10x10x4½ inches.

Camera Box—Ebony finish, corners dovetailed and covered with walrus grain leather.

Camera Bed—Solid mahogany, ebony finish, attached to camera with improved nickel plated piano hinge.

Metal Parts Brass handsomely nickel plated.

Bellows—Black Russia leather, lined with gossamer cloth.

SPECIAL FEATURES.

Front—Rising, falling and sliding. Rack and pinion—for focusing.

Tripod Sockets—Two. Swing—Back and bed.

Back—Reversible with single release, spring actuated ground glass panel for focusing.

Finder—Brilliant, reversible, metal bound and hooded.

Shutter—Seneca Autic, with bulb and tube attachment.

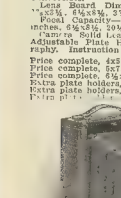
Lens Board—Removable. Lens Seneca Triple Convertible.

Lens Board Dimensions—4x5, 2¼x3¾, 5x7, 4x5¾, 6½x8½, 2¾x4¼.

Focal Capacity—4x5, 11½ inches; 5x7, 16½ inches, 6½x8½, 20½ inches.

Camera Solid Leather Carrying Case, Double Adjustable Plate Holder, Manual in Photography, Instruction Book.

Price complete, 4x5	$21.30
Price complete, 5x7	49.30
Price complete, 6½x8½	57.85
Extra plate holders, size 4x5	1.00
Extra plate holders, size 5x7	1.25
Extra plate holders, size 6½x8½	2.30



Seneca No. 29.

The Pocket Seneca No. 29 is designed especially for the beginner who desires a pocket instrument at a moderate price. Made of selected cherry with oxonized finish and has but one side rack.

SPECIFICATIONS.

Dimensions—In 3¼x4¼ size, 5¾x4½x2 in. In 4x5 size, 6¼x8½x2 in.

Focal Capacity—In 3¼x4¼ size, 6 in. In 4x5 size, 6¾ in.

Camera Box—Ebony finish, corners dovetailed and covered with seal grain leather.

Camera Bed—Solid mahogany, ebony finish, attached to camera with improved nickel plated piano hinge.

Metal Parts—Brass, nickel plated, highly polished.

Bellows—Keratol lined.

Front—Metallic, reinforced.

Back—Ground glass panel for focusing

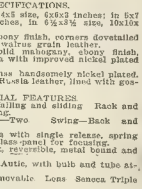
Finder—Reversible. Ground glass.

Tripod Sockets—Two.

Shutter—Seneca Uno with bulb and tube attachment.

Lens—Single Achromatic or Rapid Rectilinear.

PRICES	3¼x4¼	4x5
Pocket Seneca No 29 fitted with Single Achromatic Lens	$ 8.80	$ 9.40
Pocket Seneca No. 29 fitted with Rapid Rectilinear Lens	10.65	11.30
Extra plate holders, size 3¼x4¼	1.00	
Extra plate holders, size 4x5	1.00	



Pocket Seneca No. 30 and 31.

Pocket Seneca No. 31 Extended.

The Pocket Seneca No 31 may be classed with air meets for form, and for the general purposes of photography. The only difference between the Pocket Seneca No. 30 and 31 is that the No. 31 possesses a longer bellows and is equipped with a rack and pinion for focusing which is found most convenient.

SPECIFICATIONS

Dimensions—In 3¼x4¼ size, 6¾x4½x3 in. In 4x5 size, 6¾x8½x2 in.

Focal Capacity—In 3¼x4¼ size, 7½ in. In 4x5 size, 8½ in.

Camera Box—Ebony finish, corners dovetailed and covered with seal grain leather.

Camera Bed—Solid mahogany, ebony finish, attached to Camera with improved nickel plated piano hinge.

Metal Parts—Brass, handsomely nickel plated.

Front—Rising and Falling, Metallic, reinforced

Back—Spring Actuated. Ground glass panel for focusing

Rack and Pinion—On Pocket Seneca No. 31 only.

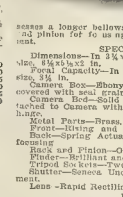
Finder—Brilliant and reversible. Metal bound

Tripod Sockets—Two

Shutter—Seneca Uno with bulb and tube attachment.

Lens—Rapid Rectilinear.

PRICES	3¼x4¼	4x5
Pocket Seneca No. 30 fitted with Rapid Rectilinear Lens	$11.20	$12.50
Pocket Seneca No 31 fitted with Rapid Rectilinear Lens	13.18	14.20



Pocket Seneca No. 32.

The Pocket Seneca No. 32 is one of our newest models of the Pocket Series. It has a greater bellows capacity than the Pocket Seneca No. 31, sufficient for using the back combination of the lenses one.

SPECIFICATIONS.

Dimensions—In 3¼x4¼ size, 4¼x3¼x6¼; 4x5 size, 5¼x8¾x6¼. Focal Capacity—In 3¼x4¼ size 9¼ inches. 4x5 size, 11½ inches.

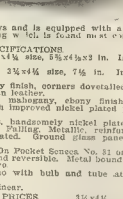
Camera Box—Ebony finish, corners dovetailed and covered with seal grain leather.

Camera Bed Solid Mahogany, ebony finish, attached to camera with improved nickel plated piano hinge.

Metal Parts—Brass, handsomely nickel plated.

Front—Metallic reinforced, rising and falling.

Back—Improved swing, ground glass panel for focusing. Removable.



Pocket Seneca No. 29.

Dimensions—In 4x5 size, 6¾x8½x2 in. In 5x7 size, 8¼x8¼x3 in. In 6½x8½ size, 10x10x4½ inches.

Focal Capacity—In 4x5 size, 16 inches. In 5x7 size, 22½ inches. In 6½x8½ size, 29½ inches.

Camera Box—Ebony finish, corners dovetailed and covered with walrus grain leather

Camera Bed—Solid Mahogany, ebony finish attached to Camera with improved nickel plated piano hinge

Metal Parts—Brass, handsomely nickel plated

Bellows Black Russia leather, lined with gossamer cloth.

SPECIAL FEATURES

Front—Double sliding, vertical and horizontal

Tripod Sockets—Two

Clamp Attachment—Press button. Back and Pinion—For focusing, Seneca type

Swing—Back and bed, operated with self-locking device

Back Reversible with improved swing spring actuated ground glass panel for focusing

Finder Brilliant reversible, metal bound and hooded

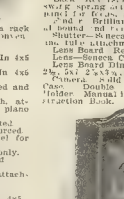
Shutter—Seneca Autic, with bulb and tube attachment

Lens Board Removable.

Lens—Seneca Convertible.

Lens Board Dimensions—4x5 2¼x3¾, 5x7 4¼x5¾, 6½x8½, 12x14¼.

Camera Solid Leather Carrying Case Double Adjustable Plate Holder Manual in Photography, Instruction Book.



Price Complete, 4 x5	$42.80
Price Complete, 5 x7	65.05
Price Complete, 6½x8½	72.55
Supplementary Wide Angle Bed 4x5	1.50
Supplementary Wide Angle Bed 5x7	1.50
Supplementary Wide Angle Bed 6½x8½	2.50
Extra Plate Holders, 4 x5	1.00
Extra Plate Holders, 5 x7	1.25
Extra Plate Holders, 6½x8½	2.20

Bellows—Black, lined with Gossamer cloth

Rack and Pinion—For fine focusing, locking device.

Swing—Either back or bed operated with self-locking device.

Finder Reversible brilliant hooded and metal bound.

Shutter—Seneca Autic with bulb and tube attachment

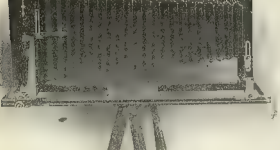
Tripod Sockets—Two

Lens—Triple Convertible.

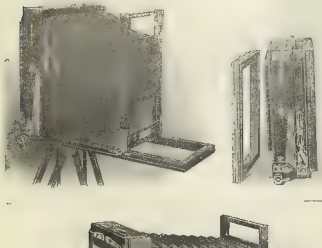
Price Complete, 3¼x4¼	$23.80
Price Complete, 4 x5	26.80
Extra Plate Holders, 3¼x4¼	1.00
Extra Plate Holders, 4 x5	1.00

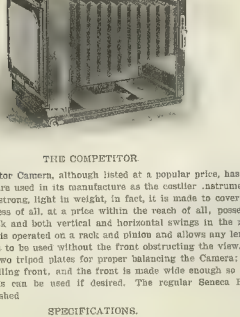
SENECA VIEW CAMERAS

LIST PRICES.



Showing Camera Fully Extended with Patented Bellows Support.





THE COMPETITOR.

The Competitor Camera, although listed at a popular price, has the same general care used in its manufacture as the costlier instruments. It is rigid and strong, light in weight, in fact, it is made to cover the field of usefulness of all, at a price within the reach of all, possesses a reversible back and both vertical and horizontal swings in the rear. The back focus is operated on a rack and pinion and allows any length or angle of lens to be used without the front obstructing the view. It also possesses two tripod plates for proper balancing the Camera; has a rising and falling front, and the front is made wide enough so that stereoscopic lens can be used if desired. The regular Seneca Plate Holder is furnished

SPECIFICATIONS.

Made in 3 sizes 5x7, 6½x8½, 8x10. Back Focus Rack and Pinion, with Set Clamp for locking at any point desired. Piano hinge on Bed Reversible Back. Wide Front, Rising and Falling Best Bellows Material. Plumb Bob. Metal Work Brass Polished and Lacquered Wood work Mahogany finish, Polished. Swings Horizontal and Vertical—both central Tripod Nuts, Two. Case, Canvas Square. Lens Board Removable

NEW IMPROVED SENECA VIEW—With Double Tongued Bed.

The camera box and front are made of the finest mahogany, with ebony finish, corners dovetailed. The Bed is made of selected cherry with ebony finish. The metal parts are made of heavy gauge brass, handsomely nickel plated. The corners are reinforced, and the bed extra heavy, fitted with a piano hinge, thereby making the camera very rigid in all its parts. The horizontal and vertical swings are operated with a rack and pinion movement with a set screw, and both swings are from the center. A feature that will be appreciated is the high front frame or standard. When the camera is closed the standard and bed fit tightly against the camera box. This feature corrects a fault so commonly found in all other view cameras where the front frame or standard is so short that it interferes with the bellows when the camera is closed. The camera is built on a three-section bed, which gives great focal capacity. It possesses a reversible back of an improved design. We also provide in the reversible back a sliding division, thereby permitting the operator to expose one-half of the plate at a time. This sliding division will be found a great convenience and a saver of plates. It can be, of course, instantly removed when an exposure is wanted on the entire plate. A handle is attached to the camera which will be found convenient. A plumb bob of brass is attached to the side to insure perfect alignment and correct position of the camera when in use. The bellows is of a new pattern, gossamer lined and finished in the best possible manner

FOCAL CAPACITY, DIMENSIONS AND WEIGHT OF THE NEW IMPROVED SENECA VIEW CAMERA.

Size	Length of draw or focal capacity.	Dimensions of camera.	Weight.	Dimensions of lens board	Price
5 x 7	..23 in.	4¼x 8¾x10½ in.	5 lbs.	3⅛x3½ in	$25 70
6½x 8½	..25¼ "	4¾x10 x12½ "	6 "	4¼x4¼ "	30 00
8 x10	..29¼ "	4¾x12 x14½ "	7½ "	4½x4½ "	33 20
11 x14	..39 "	5 x16½x19 "	10 "	5¼x5¾ "	38 00

Prices include camera, one double adjustable plate holder, and long case with compartment for 5 extra plate holders. For extra plate holders see next page.

NEW IMPROVED SENECA VIEW CAMERAS FITTED WITH LENSES AND SHUTTERS.

PRICES

	5x7	6½x8½	8x10
Improved Seneca View Camera fitted with Rapid Rectilinear Lens and Duo Double Double Valve Shutter	$42.55	$51.85	$60.50
Improved Seneca View Camera fitted with Rapid Rectilinear Lens and "Autic" Automatic Shutter	46.90	53.80	64.40
Improved Seneca View Camera fitted with Seneca Convertible Three-focus Lens and "Autic" Automatic Shutter	48.75	56.25	68.15
Improved Seneca View Camera fitted with Seneca Anastigmat Lens F. 6.8 and Autic Automatic Shutter	81.30	110.05	125.38

PRICE INCLUDING CAMERA, CARRYING CASE AND ONE HOLDER.

Size of view.	Focal capacity	Dimensions when folded or closed.	Size of lens board.	Price.
5 x 7	14½	5x 9 x11½	4x6	$18.75
6½x 8½	18	5x10¾x12¼	4x6	20.00
8 x10	18	5x12 x14½	4x6	21.25

COMPETITOR FITTED WITH LENSES AND SHUTTERS.

For those desiring a view camera complete with lens and shutter for either interior or outdoor work, including groups, landscapes and architectural work, we offer an equipment that will please the most advanced photographer as well as the beginner

	5x7	6½x8½	8x10
	Uno shutters not made in sizes larger than 5x7		
Competitor fitted with Uno Shutter and Rapid Rectilinear Lens	$26.25		
Competitor fitted with Duo Shutter and Rapid Rectilinear Lens	34.40	41.30	50.05
Competitor fitted with Duo Shutter and Triple Convertible Lens	36.30	43.75	52.55
Competitor fitted with Autic Shutter and Rapid Rectilinear Lens	37.50	45.00	53.80
Competitor fitted with Autic Shutter and Triple Convertible Lens	40.05	47.55	57.50

SENECA JUNIOR AND SENECA SENIOR

For 3½x3½ and 4x5 pictures.

These two names are applied to different sizes of the same camera—the very dainty and neat model of the Seneca. The Seneca Junior is small, neat and compact. Takes a picture 3½x3½, will produce portraits, landscape or interiors, and will carry three double plate holders with a capacity of six dry plates. Any quantity of extra plate holders may be supplied so that a large number of pictures may be made without reloading. The camera is supplied with a finder for snap-shot work. It has an achromatic lens of wonderful depth and definition, and an improved shutter. Each camera is thoroughly tested before leaving our factory. The popularity of the Seneca Senior is sufficient two tripod sockets are provided so it can be used for either hand automatic shutter for time and snap shot exposures, one button answering for both purposes. It is fitted with two large view finders, and or tripod work as desired. The Seneca Senior is fitted with the high evidence of its merits. It takes pictures 4x5 in size, has our improved grade achromatic lens, meniscus combination, of universal focus, requiring no focusing attachment. The camera is strongly made and light. Price includes camera and one plate holder. Manual in Photography and an instruction book is included

PRICES

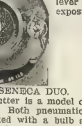
	Junior	Senior
Camera Complete, with one holder	$ 4 45	$5 10
Seneca Plate Holder Ordinary	1 00	1 00
Seneca Adjustable Plate Holder	1 25	1 60

SHUTTERS FITTED TO SENECA CAMERAS

SENECA UNO.

This shutter works on automatic principles. It is fitted with an iris diaphragm and lever which indicates time and instantaneous exposures. Made in 4x5 and 5x7 sizes only.

PRICE $2 50

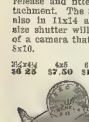


SENECA DUO.

The Duo Shutter is a model of simplicity and ingenuity. Both pneumatic and finger release and fitted with a bulb and tube attachment. The Seneca Duo Shutter is made also in 11x14 and 17x20 sizes The large size shutter will be welcomed by every user of a camera that takes a picture larger than 5x10.

PRICES.

3½x4¼	4x5	6½x8½	8x10	11x14	17x20
$6 25	$7.50	$10 00	$12.50	$17.55	$65.00



SENECA AUTIC.

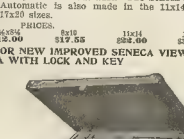
This Shutter is similar to the "Duo" except that it has the advantage that after each exposure it automatically sets itself for the next one. It is therefore self-acting and ever ready for use. Instantaneous exposures from one one-hundredth part of a second to one second, or intervening fractions thereof, may be made with the instantaneous exposure. One of the most important features of the automatic shutter is the fact that it is self enclosed, so all the working parts are therefore protected from dust. The Seneca Autic Automatic is also made in the 11x14 and 17x20 sizes.

PRICES.

3½x4¼	4x5	6½x8½	8x10	11x14	17x20
$10 00	$12.50	$12.00	$17.55	$32.00	$34.25

DRESS SUIT CASE FOR NEW IMPROVED SENECA VIEW CAMERA WITH LOCK AND KEY

Many users of a view camera desire a case that opens at the side like a dress suit case. We are therefore manufacturing a most serviceable case made in this style. Made of leatherett, with strong handle, and metal parts of brass. The suit case is made to hold the view camera, extra holders, tripod and lens, also an extra compartment provided for focusing cloth, etc., with lock and key.



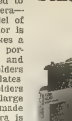
PRICES.

Price of Dress Suit Case, size 3x7, $7 50; size 6½x8½, $8.75; size 8x10, $10.00. Price when supplied with Camera, pieces of Camera all complete, regularly supplied: Size 5x7, $6 00; size 6½x8½, $7 90; size 8x10, $8 80.

Seneca Cameras, Shutters, Lenses, Etc.

LIST PRICES.

SENECA PLATE HOLDERS

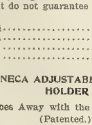


It is our aim to turn out plate holders that are absolutely perfect, and for this reason we have been very careful to furnish with our line of cameras a plate holder that will give entire satisfaction. Seneca Plate Holders are made from the best seasoned cherry, and the grooves are accurate and smooth inside, insuring freedom of action. To load them, rest the end of the plate against the spring bar at the end, then by simply pressing the bar with the finger the plate falls into place. To unload, press the bar and let the plate rest against the fingers, when it may be taken from the holder We are furnishing all of our plate holders, unless otherwise specified with black press-board sides, especially prepared by us to prevent warping swelling, etc., caused by change of temperature In this way we avoid many of the faults blamable to hard rubber. We recommend press-board sides in every instance. However, we give the choice of hard rubber up to and including the 5x7, but do not guarantee them against breakage or fogging.

PRICES.

3½x3½	$1 00	5 x 8	$1.70
3¼x4¼	1.00	6½x 8½	2.30
4 x5	1.00	8 x10	2.50
5 x7	1.25		

SENECA ADJUSTABLE PLATE HOLDER



It Does Away with the Use of Kits (Patented.)

Different Sized Plates That May Be Used

	Price
In 4x5 Holder, 4x5, 3¼x4¼, 3½x3½	$1.25
In 5x7 Holder, 5x7, 4¼x6½, 4x5, 4x4	1.60
In 6½x8½ Holder, 6½x8½, 5x8, 5x7, 4¼x6½	2 50
In 8x10 Holder, 8x10, 6½x8½, 5x8, 5x7	7 15

GOERZ DOUBLE ANASTIGMAT LENS f: 6 8

SERIES III

No.	Equivalent Focus	Plate Covered at f: 8	Price in barrel with Iris Diaphragm	Price with Auto Shutter
0	4¼ in.	3¼ x 4¼	$ 50 85	$ 62 85
1	6 "	4 x 5	73 80	76 60
2	8 "	4½ x 6½	88 20	92 35
3	8½ "	5 x 8	99 70	110 00
4	9½ "	6½ x 8½	130 45	135 10
6	12 "	8 x 10	170 70	181 90

THE VOIGTLENDER & SON DYNAR ANASTIGMAT LENS f: 6

No.	Equivalent Focus	Plate Covered at f: 9	Price in barrel with Iris Diaphragm	Price with Auto Shutter
0	4¾ in.	3¼ x 4¼	$ 48 00	$ 47 85
1	6¾ "	4 x 5	47 80	52 62
2	8 "	5 x 8	53 85	57 00
3	10 "	6¼ x 8½	85 35	98 10
4	12 "	8 x 10	114 90	126 00

THE COOKE ANASTIGMAT LENS f: 6.5

SERIES III

No.	Equivalent Focus	Plate Covered at f: 6.5	Price in barrel with Iris Diaphragm	Price with Auto Shutter
2	4½ in.	3¼ x 4¼	$ 45 00	$ 55 85
4	6 "	4 x 5	62 50	67 80
5	7¾ "	5 x 8	68 50	88 50
7	11 "	6¼ x 8½	145 20	158 05
8	13 "	8 x 10	209 30	218 65

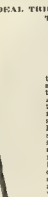
SENECA ANASTIGMAT LENS f: 6 8

On account of the large quantity that we handle we are able to supply these lenses at a remarkably low price considering the quality. The Seneca Anastigmat is made from the best quality of Jena glass and is of the double symmetrical type, each system consisting of four elementary lenses. The absolute freedom from any trace of astigmatism, and the complete correction of the spherical and chromatic aberrations constitute the superiority of this lens. It is also strictly corrected for actinic light at any aperture, and is free from internal reflections, producing a brilliant image on the ground glass with equal illumination of the field and cuts the plate sharp to the corners.

No.	Equivalent Focus	Plate Covered at f: 6.8	Price in barrel with Iris Diaphragm	Price with Auto Shutter
1	6 in.	3¼ x 4¼	$ 35 75	$ 40 85
2	8 "	4 x 5	38 80	42 10
3	9 "	5 x 7	52 85	61 25
4	10 "	6½ x 8½	85 60	98 75
5	12 "	8 x 10	103 85	112 30
6	15 "	10 x 12	140 40	149 20
7	16½ "	11 x 14	191 45	200 15

PHOTOGRAPHIC SUPPLIES

THE IDEAL TRIPOD.



The Ideal No. 1 Tripod.

Combination Sliding and Folding.

It is made of the very best seasoned cherry throughout, with a dipped brass trimmings. It is made in three sections. The lower section slides into the second, while the upper section folds back upon it. The top is of wood covered with felt, and is provided with an ingenious device which prevents the legs become ing unfastened when set up for use

Price, each..$3.20

The Ideal No. 2 Tripod.

The Ideal No. 2 is made of the same wood and in the same style as our No. 1, but is made extra heavy, and is adapted for 6½x8½ and 8x10 view cameras.

Price, each $4.25

The Ingento No. 3 Sliding Tripod.

The Ingento No. 3 is without doubt the best value on the market. The legs are made in three pieces; the center piece slides into the outer ones, making it a perfectly rigid tripod. Made of selected thoroughly seasoned wood and finished in the best possible manner

Price, each $1.28

The Ideal Jr. Tripod No. 1.

This tripod is made of straight-grained spruce, handsomely finished, with lacquered brass trimmings. The length when folded is 31 inches and weight 20 ounces. It is very rigid when set up. The legs are made in three pieces and each is in two pieces so that it can be put out of order. This tripod is used for any camera up to and including 5x7 cameras.

Price each..... $2.65

INGENTO METAL TRIPODS.

We have at least succeeded in placing before the photographic public metal tripods at prices that easily bring them within reach of every camera user, and we look forward to a greater demand for this class of tripods, which has been somewhat limited owing to high prices for this style of construction.

Ingento Metal Tripod No. 13.

Is composed of three sliding parts telescoping one into the other, producing a most compact tripod, adapted to 4x5 or smaller cameras.

The telescoping parts are nickel plated and the upper and outside tubes are finished in black. By a clever device the painting in of a spring lever in the upper joint the other joints are automatically fastened and it is only necessary to pull the right lever to release the telescoping parts and will open to any desired length for camera. Price $1.75

Brownie or Baby Ansco 4x5 folding cameras. Price $3.75

Ingento Metal Tripod No. 12.

Is similar in construction to No. 11 above, but is made up of four sections instead of three, and is made of heavier and larger tubing, making a much more substantial tripod.

Price $4.80

Ingento Metal Tripod, No. 13.

Is of the same construction as the No. 12, made in four joints but of heavier tubing and adapted to the heavier 4x5 and 5x7 cameras

Price $7.00

The Aladdin Ruby Candle Lamp.

This is a perfect little dark room lamp at a low price. It is a square lamp 6¼ inches high, 3¾ inches wide and 2¾ inches deep, with ruby glass 5¾x3¾ inches. It is perfectly ventilated and light proof.

It is furnished with an extra deep ruby glass, and is handsomely enamelled.

Every Lamp Warranted.

Price 66c

Extra candles, per doz. . . . 45c

The Aladdin Oil Lamp.

This lamp is made on the same principle as the Ideal Candle Lamp, but it is supplied with an oil reservoir to burn kerosene. It is fitted with a new central draft burner, which is the best for this class of work. This lamp is the most handy, compact and durable ever offered for the money. Price 70c

The Ideal Ruby Oil Lamp.

These lamps are made on the improved and most scientific plans, giving a volume of light never before obtained in this style of lamps. They are regulated and fuel from the outside and they are fitted with a new patent burner which insures perfect combustion without smell or smoke. The front is fitted with both orange and ruby glass, making them perfectly non-actinic

No. 1 Price $1.05

No. 2 Price $1.70

MANNING'S MASKS.

These masks are used in printing. They are placed between the negative and sensitive papers while printing. As many as 25 different combinations can be produced from one mask. They are made in two styles of pack ages. No. 1 and No. 2 package contains ovals, squares and fancy designs and No. 2 contains fancy designs only. They are made in all of the popular sizes, including 2¾x3¼, 3¼x3¼, 3¼x4¼, 4¼x4¼, 4x5 and 5x7.

Price per package 38c

When ordering please state size and number.

INSIDE KITS.

Kits consist of thin wooden frames, made to fit in the Dry Plate Holder, and with rabbets for holding smaller plates. Our Kits have bottoms at each end of aperture for holding the plate in place.

4x5 to hold 3¼x4¼ plates 35c

5x7 to hold 3¼x4¼ or 4x5 plates 40c

The Ideal Flash-Light Cartridges

These cartridges are simplicity itself. Each carton contains 6 cartridges and fuses. The directions are to simply remove the fuse from the cartridge and place one of the fuses into the powder, then close the lids and projecting from the powder.

Price No. 1 Size 20 gr. cartridges 35c

Price No. 2 Size 40 gr. cartridges 55c

Price No. 3 Size 60 gr. cartridges 65c

The Ideal Flash-Light Reflector.

This is a magnesium powder and that ranks with the best on the market. It produces the most brilliant light possible to obtain. It gives the finest effects in portraiture photography. It ignites quickly and is perfectly safe. Put up in ½ oz. boxes enclosed in carton.

Price per ½ oz 30c

Ingento Focusing Cloth.

This Focusing Cloth is made of fine black serge cloth, coated on one side with rubber, which makes it perfectly light and waterproof. Each cloth is one yard square.

Price, each 65c

Rubber Tubing

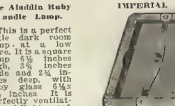
For Camera Shutters, sold as supplied with bulbs.

Red per foot..... 8c

White, for Studio Shutters, per foot. . 7c

List Prices

IMPERIAL PRINTING FRAMES.



Our Printing Frames are constructed on an improved plan. The springs are fastened by rivets instead of screws, and have a washer placed under them to prevent wear on the woodwork. The catch buttons are set into the wood flush with the frame so that they pile up readily.

Prices each.

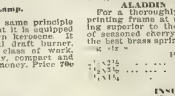
3¼x4¼	60c	8 x8	$0.83
4 x5	65c	8½x8½	95
4¼x6½	68c	8 x10	1.28
4 x7	70c		

ALADDIN PRINTING FRAMES.

For a thoroughly well-made and substantial printing frame at moderate cost, there is nothing superior to the Aladdin. It is constructed of seasoned cherry, the back being fitted with the best brass springs. Made only in the following sizes:

Price, each.			
3¼x4¼	27c	4 x5	27c
4¼x6½	27c	4¼x6½	27c
4x7	27c	5 x7	30c

INSULATE TRAYS.
(Patented Design.)



This tray is constructed on entirely different lines from previous plans and is much superior in every way to the ordinary composition article. The chief point of distinction is the **anti-splash** feature. This is ensured by the construction of the sides which are made slightly sloping, up to within one-half inch from the top and the edge or border of about one-half inch in width extending all around the tray is perfectly square, and is placed at a right angle to the bottom. This method of construction prevents the solution from spilling when the tray is rocked.

These trays are made of a highly finished and polished vulcanized composition that is used very extensively as a substitute for hard rubber in the electrical lines. They will stand the action of the strongest acid, acetone, alcohol, or any other chemical used in photography. They will not discolor, nor will they discolor by action of chemicals. They are not varnished or coated, but are made of one solid mass of the same material throughout, and are entirely seamless.

All insulate trays have an outpour lip to fit readily into the mouth of a bottle, ensuring against spilling the chemicals; also the interior corners are rounded so that no chemical sediment can accumulate, allowing the tray to be readily cleaned.

Our trade mark "Insulate" is embossed on each tray.

4x5	$0.50	8x10	$0.72
5x7	50	11x14	1.07
7x9	51		

IDEAL PLATES GRADUATES.

All of the Graduates that we handle are guaranteed accurate. The ideal graduates are made specially for photographic use. The figures are embossed on the outside of the graduates, while the lines are engraved; they are therefore perfectly accurate, and are better for photographic use than any other on the market.

Prices, each.

1 oz	30c	½ pt	$0.60
½ oz	35c	1 pt	85
2 oz	43c	1 qt	1.50

GLASS FUNNELS.

Plain and patent fluted funnels are most desirable as they filter paper quicker than plain funnels.

1-oz. plain	20c	1-pt. fluted	20c
1-pint, plain	25c	Pat fluted	25c
1 quart, plain	35c	Pat fluted	30c
½-gallon	58c	Pat fluted	64c

Wood Developing Negative Rack.

Holds 14 plates while developing and when not in use it can be folded

Price, ea. 36c

MIDGET WOOD RACK.

Same as above, only half the size; made to hold 12 plates. Price..... 23c

1909 Glide Cars

For 1909 the Glide line, built by the Bartholomew Company, Peoria, Ill., will consist of a touring car, Model "G" special and roadster, Model "R." The two cars are practically twins, so far as the chassis, that is, the power plant and running gear, is concerned and one description will cover both cars.

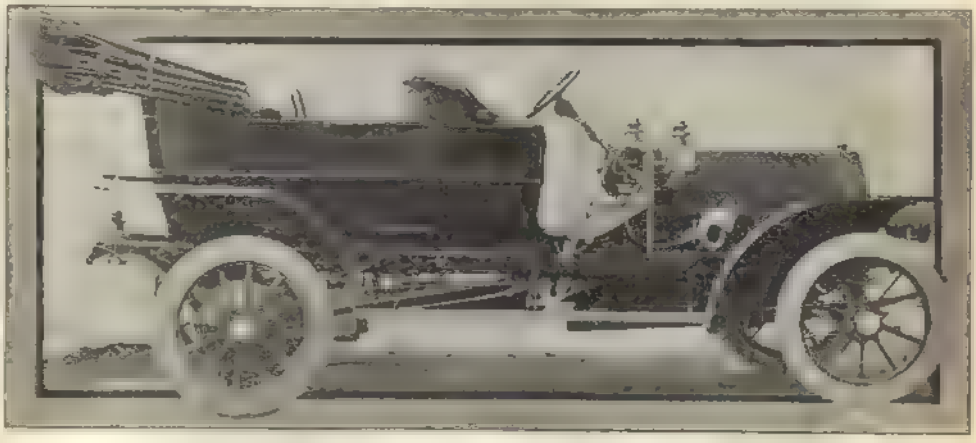


Fig. 1. 1909 Glidge Touring Car. Rutenber motor 4¾x5, special self-contained oiling system, transmission rear axle, sliding gear type, selectively operated, tires 34x4½, jump spark ignition from storage battery, Bosch magneto double-ignition system extra, seating accommodations for seven, wheels on Timken roller bearings, multiple disc clutch, wheel base 120-in. Price, with lamp, horn and usual tool equipment, $2500.

THE POWER PLANT.

For a number of years this company has used the Rutenber motors. They have always given satisfaction and are well known to all motor users. The motors used in the 1909 Glide cars are made especially for this concern and contain improvements and special features not found in any others. The bore is 4¾ inches and the stroke, 5 inches. The crankshaft is 1¾ inches at the bearings of which there are five. The connecting rods and cross head pins are larger than in previous year's construction.

Lubrication is effected in a new and novel manner of the company's own design and manufactured in connection with the motors for its use. There are applications pending patents on this lubricating device and no rights have been granted to others. The system is substantially as follows: Cast integral with the lower case, surrounding the crankshaft, is an oil reservoir with a glass gauge at one end to indicate the amount of oil. From this the oil is pumped, by a small gear pump, up into and conducted along through the crank case, opposite the cranks and falls into the crank case surrounding them.

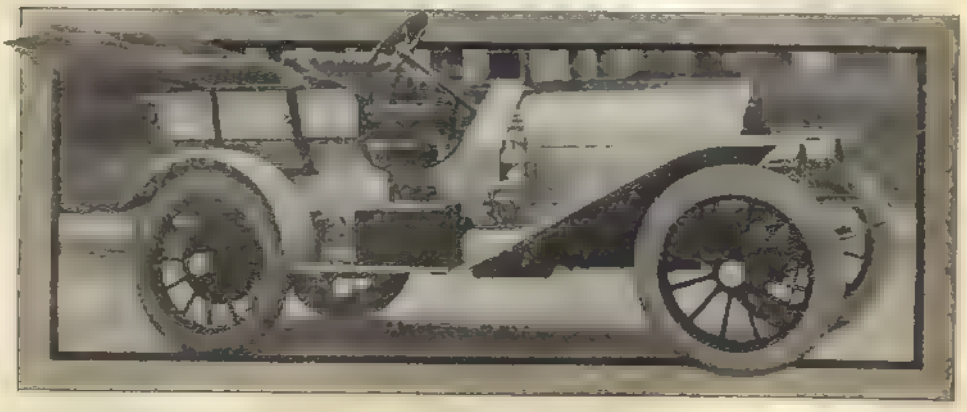


Fig. 2. 1909 Glide Model R roadster. Same general chassis specifications, but shorter wheel base, this being 106-in.; wheels 35-in., fitted with 4-in. tires. The body is a close coupled, or baby tonneau, with seating capacity for four. A single or double rumble seat, either stationary or collapsible, may be had if desired. Price with usual equipment, $2000.

As soon as the level of the oil in the crank case has reached a sufficient height to take care of the lubrication, by the splash system, it overflows through slots in the case and runs back into the subreservoir under the crank case, when it is again pumped up and thus kept in contin-

ual circulation. This keeps the oil in the crank case at exactly the same point at all times and properly lubricates the motor, without any piping or apparatus that requires attention and care. All that is necessary, is to look at the oil gauge and see if there is a sufficient amount of oil in the sub-reservoir. If there is, the motor will thoroughly and properly oil itself.

The cam shaft valve lifters are of the swinging lever type. They run noiseless and are lubricated thoroughly, because of their location inside of the crank case. The valves are of nickel steel and can be readily removed for regrinding when necessary.

The Glide cars are built for a single or double ignition system. All cars are furnished with a quad coil located on the dash. When a double ignition system is wanted, a Bosch high tension magneto is furnished at $150 extra..

poured directly from a bucket, without the aid of a funnel. The water circulates through the cylinder jackets by means of a circulating pump of the double gear type. This affords a positive circulation, as the pump is connected direct with the cam shaft.

DISC CLUTCH.

The multiple disc clutch consists of a number of steel discs, located in the flywheel. This clutch is oil tight and dust proof, starts the car without a jerk and holds firm at all times and never requires adjustment. This clutch is thought to be absolutely correct, as it is claimed no word of complaint has ever been offered by a purchaser on a car fitted with one of these clutches.

SELECTIVE CHANGE SPEED GEAR

The change speed mechanism in all Glide cars is of the selective, sliding gear type with three speeds forward and re-

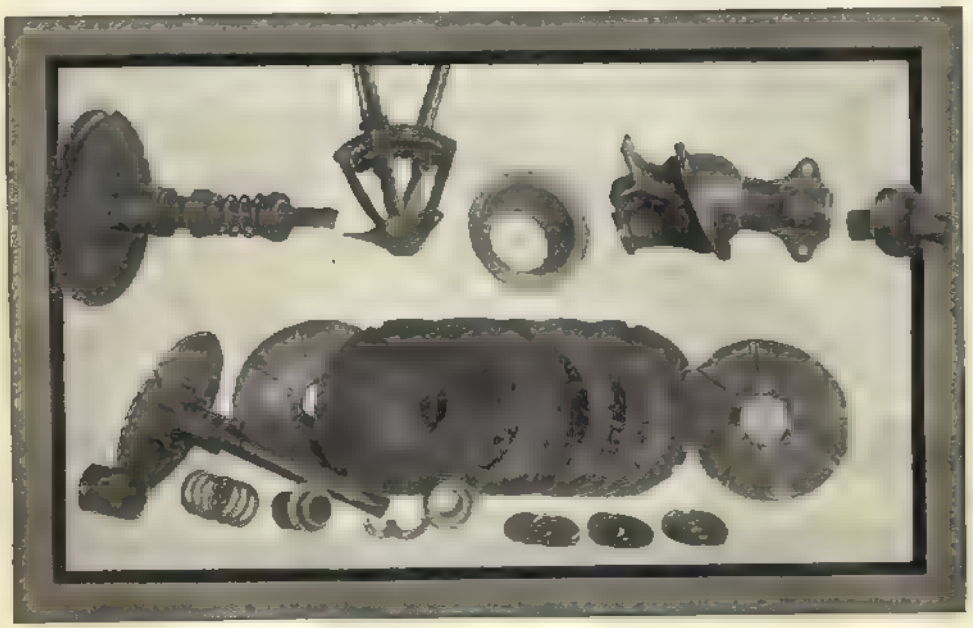


Fig. 3. View of the clutch and universal ball joint of 1909 Glide Models. This multiple disc clutch has all steel plates, enclosed in an oil tight housing in the fly wheel. It is guaranteed to give smooth starting and wear indefinitely. The ball joint is arranged at the forward end of the propeller shaft housing, which is rigidly bolted to the change speed gear case, forming a part of the rear axle construction. This ball joint gives a swivel mounting to this member and takes the thrust of the tractive force of the wheels, transmitting the same to a substantial cross member of the frame, thus entirely relieving the rear springs, which are shackled at both ends.

MOTOR CYLINDER COOLING

The radiators used in connection with these cars are of the cellular type. They are of sufficient size to easily cool the motor in the warmest weather. The overflow is in the top of the cooler, through a small pipe, which delivers the water down the side. Underneath is a valve for draining in cool weather or whenever occasion requires. A screen is provided for filtering the water. The cap is oval shape and of a large size, so the water can be

verse and is located directly forward of the compensating gear case of the rear axle. The advantages of such a location are many. It gives less angularity to the propeller shaft; makes possible a construction whereby only one universal joint connection is necessary on the propeller shaft. The gears are all drop forged, alloy steel, accurately cut and carefully hardened. This location also permits of an oil tight construction from the hub of each rear axle to the center of the gear case and up

along the propeller shaft to the universal joint, thus encasing all of these parts and protecting them from dust. A door is provided in the bottom of the tonneau floor, so that gears can be examined or supplied with transmission grease. The propelling power applied to the rear wheels is forwarded to a large ball thrust surrounding the universal joint through which the propelling power is applied for pushing the car frame. By disconnecting the springs from the rear axle and removing the back half of the encasement of this large ball, the whole rear system can be readily moved. As the construction is such that only one universal joint is required this is housed in a complete globular member that is oil tight and serves as a connection between the clutch shaft and the rear axle.

THE CONTROL.

The Glide steering mechanism is of the bevel type strongly constructed for safety. The most delicate touch of the wheel creates a quick response from the front wheels. The spark and carburetor control is on the 17-inch steering wheel with ratchet stop levers to stay where they are put. This means they are locked against movement applied at the lower end, or anywhere else, except when applied to the levers themselves.

The motor is controlled by these two small levers, one regulating the gas and the other the spark. The clutch is operated by a foot lever. One foot lever, the right, not only throws out the clutch, but sets one pair of brakes and the other set is controlled by a hand lever, placed at the right side of the car. The shifting of the gears is effected by a single lever. This operates two sub-levers and has a button of the plunger type at the top. When the button is pressed down and the lever thrown forward, the car is in intermediate speed and if the lever is thrown backward it is in high speed. With the button up and the lever forward, reverse speed is obtained and when thrown backward, the low speed is in.

THE AXLES.

The front axle is of the dropped I-section construction, 1¾ inches x 2¾ inches and is of a superior grade of alloy steel. The steering knuckles are large, the spindles being 1⅝ inches in diameter at the shoulder and 1 3-16 inches diameter at the point. The knuckles are carried on heavy steel yokes which surround the axle and extend over a sufficient distance to form the spring seat for the front springs. The construction of this axle is such as to give a large road clearance. The fact that during two years not a single replacement has been required, is pointed to by the company as conclusive evidence that the design and proportions are correct.

The rear axle shafts are of substantial build being 2 inches in diameter. Instead of connecting these shafts on their inner ends to the compensating gear pinions by a key and nut, which is the construction most generally followed, this fastening has been made by milling on the shaft, three keys, ½-inch face and 5-16-inch deep. Keyways to correspond with these are cut in the hub of the pinions and as both processes are done by the use of jigs, a neat fit is produced. This construction makes it impossible to have any key trouble, because the parts are not dependent upon keys that may become loose. The compensating gear has a large Timken roller

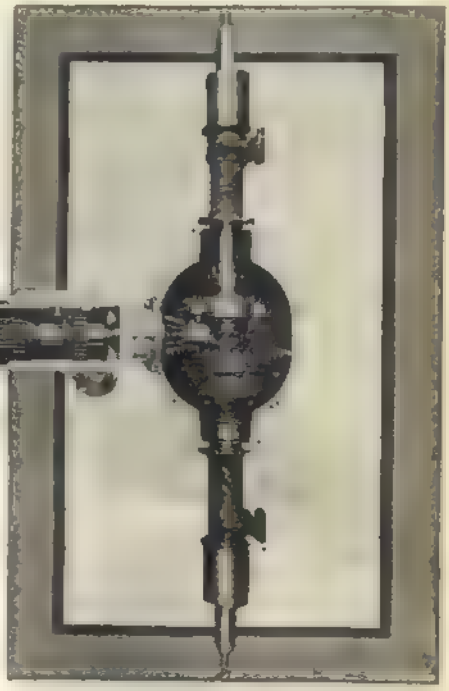


Fig. 4. View of the transmission rear axle assembly. This construction is mounted throughout on Timken roller bearings, the inner end of the 2-in. diameter live shafts are milled forming integral splines which engage the compensating bevel gears, ball thrust bearings are used where necessary. The change speed mechanism is of sliding gear type, selectively operated, giving three speeds forward and a reverse. The forward end of the propeller shaft housing is swivel mounted as described in the text.

bearing on either side and a ball thrust bearing to hold it against the side pressure of the pinion. The axle shafts have two sets of Timken bearings at the outer end, making six roller bearings in the rear axle. The casing and housing are of steel and aluminum of proper proportions to eliminate the use of truss rods. Sufficient space is provided for a liberal supply of non-fluid oil for lubricating.

A strong point is made by the manufac-

turers that the rear axle mechanism in Glide cars does not have, in any place, any light keys or parts fastened together by cotter pins or lock nuts. The parts are integral, made in one piece and all of the keyways are milled in the most mechanical manner. The shafts are machined so as to leave their ends full size. All of the gears in the rear axle are of special alloy steel, cut and hardened in the factory. This construction is not cheap, but on the contrary, the most costly that can be pursued in the making of an automobile axle.

THE BRAKES.

The rear brake drums are of pressed steel, 16 inches diameter, 3 inches face and are made to receive an internal expanding and external contracting brake. The large diameter and face of these

Fig 5 View of the 1909 Glide internal and external brakes and drum, showing the double acting, contracting, external band brake and the toggle joint expanded internal belting lined brake. The drum is 16-in in diameter and 3 in face.

brakes, makes it possible to hold the car with either, under the most trying circumstances. Good powerful brakes and a double set of them, afford comfort and satisfaction to all drivers. Glide brake practice has been very generally adopted by the manufacturers both here and abroad.

THE WHEELS AND SPRINGS.

The hubs are of steel and the spokes are 1¾ inches in diameter and of the very best second growth hickory with 10 spokes in front and 12 in the rear. On the touring car, the wheels are 34 inches in diameter and are fitted with 4½-inch tires. On the roadster, the wheels have a diameter of 36 inches and are fitted with 4-inch tires. Goodyear quick detachable rims, have been adopted as standard. These rims will receive any standard American or European make of clincher or quick detachable tire.

Both front and rear springs are half-elliptical, those at the rear are shackled at each end and those at the front are shackled at the rear end only. The rear springs of the touring car are 56 inches long and the front springs are 40 inches long. The rear springs of the roadster are 47 inches long and the front springs, 39 inches long. Considerable time has been devoted to testing out suitable springs for these cars and the sizes adopted and the construction, give both of the cars very easy riding qualities.

The hoods are all made with hinges full length running through the center and a hinge on each side of the center, so the hood can be raised from either side, exposing the entire mechanism. They are held in position by means of four brass fasteners, which are readily disengaged. The frame is of pressed steel. Strong sheet metal fenders are used, having wings to prevent the mud from striking the body and having flanges on the outer edges for strength. They are painted in colors in keeping with the body colors.

BODIES

The bodies are of liberal size, with wide tonneau doors and ample room in the tonneau. The rear seat is large enough for three passengers and there is room in the tonneau for two additional revolving, removable seats, affording accommodation for five passengers in the rear. The upholstery is of the finest material and all trimmings of the car are carefully selected and brought out, giving the car an excellent appearance and comfort not usually found. The space between the frame and the running boards on all cars is covered although not as shown in the illustration.

The regular body for the roadster is what is known as a close coupled or baby tonneau. It is made to seat four passengers. If desired, the single or double rumble seats of either the stationary or collapsible type can be had. The price of this car is $2,000.00.

The standard color for the touring car is light Brewster green with cream running gear and for the roadster Automobile Gray. Other color schemes will be furnished only when ordered. The touring car sells for $2,500 00 with the usual equipment and is also fitted with limousine body at $3,500.00.

The weight of these cars, is not given as the company feels it would do them a great injustice, because so many of the alleged light weight cars now on the market, when put on official scales, show up so differently from what they are represented.

A table of actual weights of well known cars is being compiled by the company giving purchasers the actual weight of Glide cars, as well as other cars of a like class.

All of the parts entering into these cars, save the motor, ignition devices and tires are made in the Glide factory and all parts are kept on hand which means getting renewals promptly and with absolute certainty.

All cars are ironed for cape extension tops and are equipped with a horn, coat rail, two side lamps, tail lamp, tire pump, tire repair kit and one Glide automobile tool kit.

1909 MODEL D GARFORD

The Garford Motor Car Co., of Cleveland, Ohio, New York Office, 1540 Broadway, is placing on the market for 1909 a large 40 H. P., 4-cylinder model known as "D", which is a continuation of last year's Model B. There have been several changes, the most important of which is in connection with the ignition system and will be dealt with further on.

The general arrangement of the car is similar to that of last year, the specifications in brief being as follows: 4-cylinder motor, water cooled cylinders cast in pairs with integral water jackets, 4¾ inch bore, 5¼-inch stroke, water circulation by gear driven centrifugal pump and cellular radiator. The transmission is four speeds ahead and one reverse of the selective type, the third being the direct drive and the fourth speed being geared up, that is, the propeller shaft runs at a higher rate of speed than the engine. This transmission is a marvel of compactness and by a peculiar construction by which one gear is outside of one of the bearings, the shafts are made very short and therefore extremely stiff so that the gears are always properly meshed and the shafts cannot spring apart. This, of course, produces very quiet running qualities. The clutch pedal is so compounded that a very slight pressure is sufficient to release the clutch against its 150 lb. tension spring. This, of course, is made possible as the clutch pedal motion is 3 inches or thereabouts as against ⅝-inch for clutch motion. The transmission shafts are mounted on annular type ball bearings. The direct drive on the third, makes it possible to remain in the direct drive practically all the time and negotiate all hills without unduly taxing the engine, and when it is desired to make exceptionally high speed this can also be had by shifting into the fourth speed. Shaft drive is used, the shaft being very nearly horizontal. The rear axle construction is entirely ball bearing and is of the floating type, the wheels being driven by means of hub clutches engaged by the ends of the live shafts in the rear axle casing, this construction relieving the driving members entirely of the weight of the car. The front axle is a nickel steel drop forging of I-section fitted with ball bearing pivots and 36-inch wheels. The wheels are of second growth hickory, Grade "A". The make of tires is optional, the standard sizes being 4 inches for the front and 4½ inches for the rear. The wheel base is 117 inches and the tread is standard.

THE NEW MAKE AND BREAK IGNITION SYSTEM.

There have been practically no changes in the power plant with the exception of the ignition. For 1909 the new low tension Bosch magneto with a magnetic or make and break spark plug is used. The magneto supplies low tension current and is fitted with a distributor which takes care of all four cylinders, thus making the timing absolutely synchronous. The plugs, each of which contains a fine silver wire coil, are not clumsy or excessively large, being only slightly larger than an ordinary jump spark plug. The central electrode on the inside is movable and constitutes the breaking mechanism, but the break is made electrically and not by means of mechanical devices. It is claimed that these plugs have been subjected to a temperature of 500 degrees, without, in any way, affecting the insulation or their perfect action. This system gives as short wires as those of the high tension magneto with the additional advantage that these short wires are smaller in size and carry only primary current so that all short circuiting difficulties are done away with. A short circuit push button is arranged in the dash-board so that it is possible to instantly cut off the ignition when de-

1909 40 H. P. 4-cylinder Model D Garford. Motor 4¾ x 5¼. Shaft drive. 4 speed selective sliding gear direct on the third speed. Double ignition system, using the new low tension Bosch magneto, and a magnetic make and break spark plug, as described in the text. Fully equipped, including double ignition system. $4,000

sired. In this system the central rod in the spark plug is the only movable part of the make and break mechanism. The change of the time of the spark is taken care of by shifting the distributor on the magneto. It is claimed the spark is exceptionally powerful and very reliable.

SOME CHANGES.

A few minor changes have been made such as the introduction of a Hill Precision Oiler, gear driven from the end of the cam shaft; the water pipes and all connections have been made larger, insuring freer circulation; the springs have been flattened out and somewhat lengthened, those at the front being semi-elliptic while those at the rear are of the platform type. The prest steel frame over the rear axle has been arched, allowing the body to be carried low and at the same time give sufficient clearance at this point. The body is made of aluminum panels with the beads rolled into the metal and this paneling is built up on a frame of steel and wood, making a very light but strong construction. The foot-boards are of cast aluminum and form a part of a cast bracket which rests on the frame and to which the mahogany dash-board is rigidly attached. This makes a very strong construction and beneath the floor boards forms a carrying space for tools, etc., and is accessible by means of a neat cover. This is at one side while at the other side by raising the cover the oiler is made accessible, the dash being entirely free from all mechanism, there being absolutely nothing on it except the little ignition cut-out button.

The utmost attention has been given to working out of even the minutest details of the design so that everything shall harmonize. No stock parts of any kind are used on the car, even the lamp brackets, tonneau door handles, etc., being of special design for this particular model. The tail lamp, which is usually a continual source of trouble on account of its being blown out by the under draft from beneath the car has been placed in a new position where it is claimed these troubles are entirely avoided. Its bracket is rigidly attached to the left mud guard at its rear end. In this position the lamp is subjected simply to the same sort of a direct breeze as those on the front of the machine.

CLUTCH.

The clutch is of the leather faced cone type, but is provided not only with cork inserts but also with engaging springs beneath the leather so that the smoothest and easiest action is obtained. A 20-gallon gasoline tank is arranged under the front seat with gravity feed to an automatic type float feed carburetor which is also provided with a mixture adjustment.

CONTROL.

The usual control arrangements are provided such as spark and throttle levers on a stationary segment over the steering wheel and a foot throttle is also supplied. The selective type gear shift lever is in the usual position at the right as is also the emergency brake lever. The brakes are of large diameter and wide faces and both operate directly on the rear wheel drums, the internal expanding brake being controlled by the hand lever and the external contracting brake by the pedal. This external brake is provided with a special pad at the top which first engages the drum and through its drag causes the entire band to engage evenly, adding much to the successful action of the brake. The steering mechanism is of the worm and segment type. A protecting pan extends the entire length beneath the engine and transmission. Just to the rear of this and crosswise of the frame is a large and efficient muffler, fitted with two duck bill outlets so constructed as to keep down the dust of the rear wheels.

The equipment of this model consists of two acetylene headlights with gas tank, two oil side lights, one rear light, horn, tire carriers, robe rails, foot rests, jack and complete equipment of tools and extra parts. The finish and upholstery are of the very highest grade. Thus fully equipped, the car sells for $4000, including, of course, the magneto and special ignition system.

A Premier car was awarded the Standard Oil trophy for the best gasoline economy during the recent 1,005-mile endurance run of the Chicago Motor Club. Its performance was 12 per cent. better than its nearest perfect score rival.

W. H. Kiblinger Co., Auburn, Ind., have experienced such a large demand for Kiblinger Auto Buggies that they have been compelled to increase their manufacturing facilities and now, after expending $20,000 in new machinery, etc., are prepared to turn out 25 of these vehicles daily. A Canadian branch has been established at Orillia, Ont., an Eastern Office at 256 Broadway, N. Y., and another branch office at Kansas City, Kans.

The Baker Motor Vehicle Co., of Cleveland, Ohio, desires it understood that it has no connection with the Baker Motor Vehicle Co. of New York, which recently went into bankruptcy, other than that the latter company sells cars made by the Cleveland concern. On account of the similarity of the names the impression may have been made that it was the Cleveland concern which was financially embarrassed, but such is not the case.

1909 Marmon Cars

BY P S TICE

The Nordyke and Marmon Co., Indianapolis, Ind., are offering three models for the coming season—a large, 50-60 H. P. seven passenger car which may be had with standard open touring, close-coupled open touring, or fully enclosed body, price, $3,750, F. O. B. Indianapolis; a 40-45 H. P. roadster which may be changed at will to accommodate two, three, or four passengers, price $3,500; and a smaller, lighter car of 32-40 H. P., at $2,400, with either five passenger touring or roadster body.

The two larger cars differ from each other only in size and body types, the design of all parts being identical, and are slightly modified continuations of the cars of the same powers offered last season

The Marmon Company points with well founded pride to the fact that its cars are the product of but one factory—its own. Such manufacturing methods are of course made possible only through the possession of a plant of great extent and specialized departments. The milling machinery business, upon which the Marmon Company is founded, necessitated such a plant; and the same methods of manufacture, supplemented by the necessary specialized knowledge and tools, were employed when the manufacture of motor cars was taken up.

THE 50 60 H. P. MODEL.

The 50, which is fitted with the well known Marmon cast aluminum body, poured in the Company's own foundry, as are all aluminum and bronze, and many of the gray-iron parts of the cars, has a wheel base of 118 inches with standard tread (56½ inches). The wheels are heavy wood artillery, fitted with quick detachable 36x5-inch tires in the rear and 36x4-inch tires in the front. Full elliptic springs are employed throughout. The front axle, an I-section drop forging, has integral spring seats on its under side, each spring being retained by four U clips. A notable feature of these axles is that the width of the lower flange is greater than that of the upper, proceeding from the steering pivot to the spring seat where its width becomes equal to the length of the spring seat. This strengthens the axle some hundred per cent. at a point where it is most liable to bend if an obstacle is struck by a wheel. Between the spring seats the axle is of uniform section. The steering knuckles are of the Lemoine type with the weight of the car carried upon H-B ball thrust bearings.

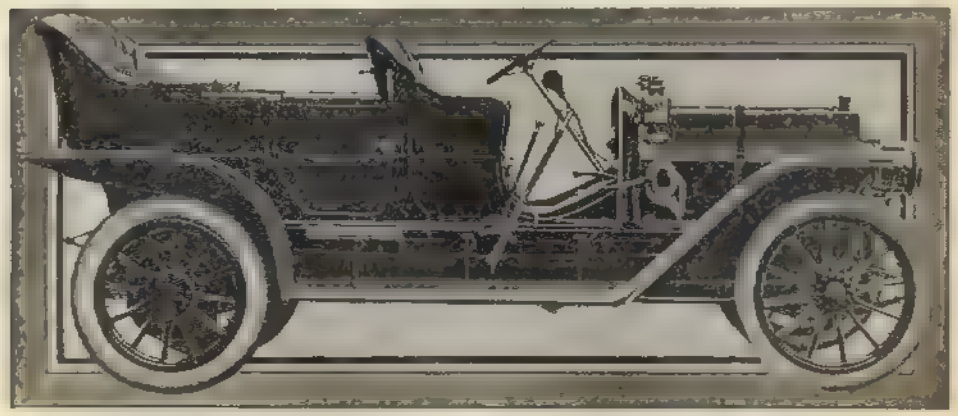


Fig. 1. Side elevation of Marmon 50. Water-cooled 4-cylinder motor Bore 5¾ stroke, 5-in.; wheel base, 118-in. 36x5-in. detachable clincher tires at the rear and 36x4-in. at the front. Full elliptic springs front and rear perched on the under side of the axle. Passenger capacity seven. 1909 special arrangement of Marmon double three-point suspension, as described in the text. Price, $3750, fully equipped.

DOUBLE THREE POINT SUSPENSION.

The centers of the upper halves of the front springs are trunnion mounted at the forward end of the sub-frame which carries the engine and change gear. These trunnions, are clearly shown in the accompanying photos of the power plant assembly. At the center of the sub-frame forward cross member is a large hollow trunnion, providing a universal motion, upon which is carried the front end of the main or body frame. This also can be seen in the above mentioned photos at a point just beneath the radiator fan. The double three-point suspension, which is a distinctive Marmon feature, is completed by the attachment of the center of the rear sub-frame member to the center of a main frame cross member by means of a second hollow trunnion, through which the propeller shaft passes, and the suspension of the rear corners of the main frame by means of full elliptic scroll-end springs seating upon the rear axle tube. This construction leaves the main or body frame free from all engine vibra-

tion, prevents distortion of either frame under adverse road conditions, and very materially adds to the easy riding qualities of the car. The combination of this frame construction with long, flexible, scroll-end springs and 36-inch tires makes even the poor Indiana roads seem fit for travel.

THE ENGINES.

The engines of all three cars are of the four-cylinder, four cycle, water cooled type with T head cylinders cast in pairs and water jackets closed at the top by large aluminum plates which also provide the water outlet fittings. Large water spaces entirely surround the piston sweeps, valve seats and passages. All crank cases are of the barrel type, the shafts with their center bearings being inserted from the fly-wheel end. The crank cases are cast open at the bottom and are closed by a large aluminum oil pit of three gallons capacity.

The crank shafts are of the three main journal type and are cut from billets and carefully machined all over to secure balance. The main journal of the 50 and 45, the latter otherwise designated as model H, are each 2 inches in diameter and have forward and center bearing lengths of 3⅛ inches and fly-wheel bearing lengths of 4½ inches. Also the pins are the same for each 1⅞ inches diameter by 3 inches in length. While main journal and crank pin bearings are the same sizes in each case the crank webs are much heavier in the larger 50 H. P. engine. The 50 crank shaft has radial webs ⅞-inch by 2⅞ inches and diametral webs, between cylinders 1 and 2 and between 3 and 4, 1⅜ inches by 2⅞ inches. The 45 or H shaft has radial webs ⅞-inch by 2⅜ inches, and diametral webs, 1 inch by 2⅜ inches. The cylinders of the 50 and the 45 are 5⅝ by 5 inches and 5 by 5 inches, respectively, 45-inch seat. Valves of the same size are also used in both of these engines, viz., 2.29 inches clear diameter.

Returning to the crank case, this is an aluminum alloy casting made in the home foundry. It is provided with an integral pan, four supporting arms of tapering depth with rectangular cross section and a large integral and symmetrically disposed gear enclosing chamber at the forward end. Upon the top and at the center of this housing is mounted the radiator fan supporting bracket.

The connecting rods, steel drop forgings machined over all to secure equal weights, are of I-section with big ends, of the marine type, bushed with Parson's white bearing bronze. The upper ends are bushed with phosphor bronze and are non-adjustable upon the 1¼-inch diameter hollow wrist pins. The pistons greatly exceed the stroke in length, are fitted with three sets of rings, two in each groove each pair backed by a bull ring, and have four oil grooves toward their lower ends. The connecting rods are 13½ inches between centers in these 5-inch stroke engines and this together with the great piston length tends to minimize wear and secure long life. Through bolts are used for retaining cylinders and main journals.

Crankshafts, cam shafts, wrist pins, etc., are all heat treated, hardened and ground. The cylinders and pistons are ground in the presence of a strong blast of air which effectively cools them and carries away the grindings.

The cam shafts are steel forgings with integral flanges for bolting to the timing

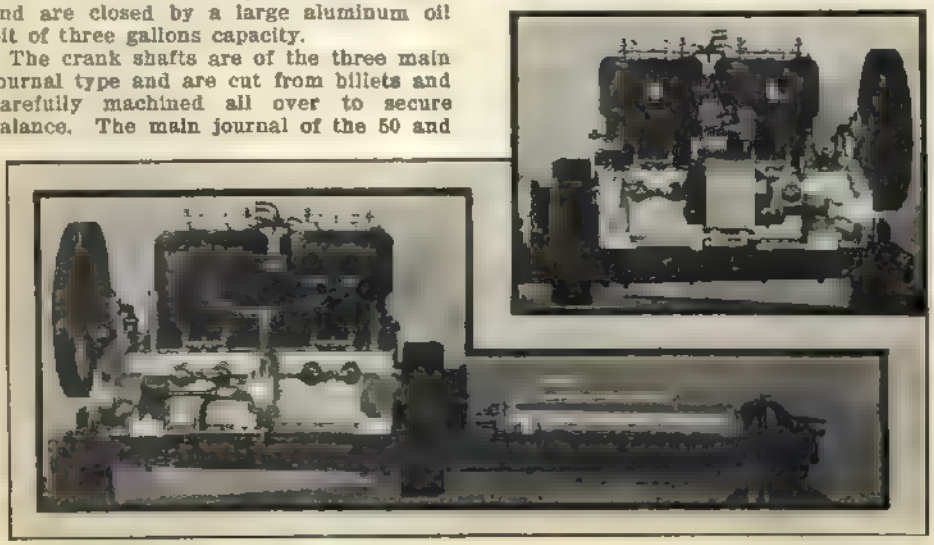


Fig. 2. Right and left sides of Marmon 50. Water-cooled motor. Also showing the sub-frame unit on which the engine and transmission are mounted. The forward end of this frame rests in trunnions on the two forward springs, while the rear end is swivel-mounted at a single point. The front end of the frame proper is swivel mounted at the center point of the front of the sub-frame, while the rear of the frame proper is carried on the two rear springs. Attention is called to the location of the water pump, the magneto, and to the liberal use of yokes for holding parts in place. Also to the expansion joint in the exhaust manifold and the very short intake pipe entering the cored passages in the cylinder jackets, and thus doing away with external piping.

gears, and have the cams attached by keys and pins. The cams have outlines approaching that of a cam of uniformly accelerated lift and are thus very quiet in action. Three long bronze bushings support each cam shaft within the case where it gets the benefit of splash lubrication.

SPECIAL CAM FOLLOWERS.

The cam followers of the Marmon engines are of special interest. These parts are fitted with double yoke inner ends and carry two rollers one above the other. The lower roller contacts the cam and the one just above it the end of a short push rod which is held vertically by its guide and in turn contacts the end of the valve stem. The follower proper, carrying the two rollers as above, is a lever fulcrumed in a cylindrical bronze piece which closes an opening machined in a boss on the side of the case. In the two views of the engine are shown these bronze follower lever carriers held in place in pairs by yokes and studs. Upon removal of a retaining yoke the followers may be drawn from the case and wear in the valve operating system taken up by the insertion of hardened steel shim washers under the head of a piece the stem of which fits into a counter bore in the plain push rod noted above. This construction obviates the loosening and loss of adjustment which sometimes occurs when threaded caps and lock nuts are depended upon for valve stem clearance adjustment.

Over each valve opening seat a ground in disc is held by a threaded ring screwing into the cylinder casting. Each of these ground seat discs carries a spark plug. From the rear end of the intake cam shaft a roller contact timer is driven by spiral gears, and from the rear end of the exhaust cam shaft a small cam driven air pump supplies air pressure to the gasoline tank. Such a pump precludes any possibility of failure in the pressure line through clogging of valves, as often occurs when exhaust pressure is relied upon.

INTAKE PASSAGES CORED IN CYLINDERS.

In all three of the Marmon cars the intake manifold is done away with and short, direct passages secured for the mixture by casting the cylinders as in the Itala cars and setting the carburetor directly between adjacent valve chambers of the cylinder pairs. Gasoline tanks are located under the front seats but the close connection between carburetor and engine ports makes gravity feeding impossible, hence the air pump mentioned above. The view of the exhaust side of the engine, model 50, shows the two piece exhaust manifold and its expansion coupling.

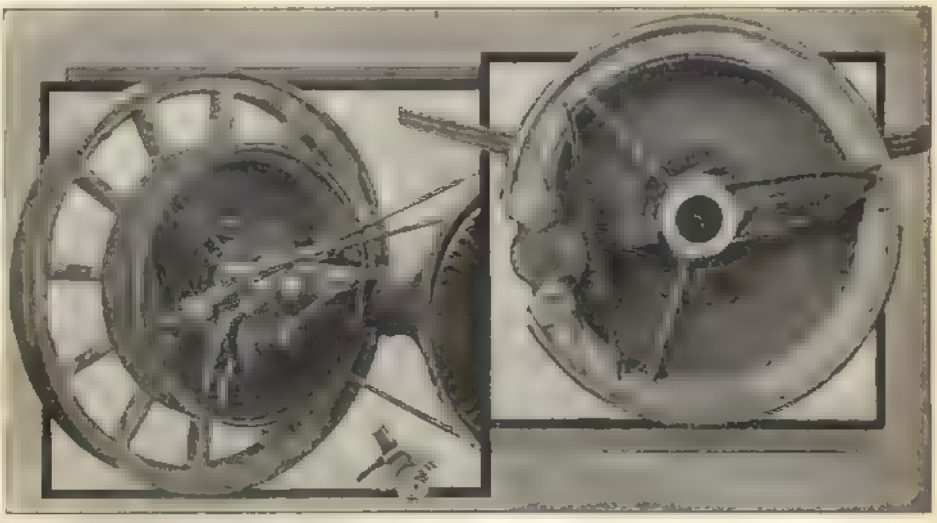


Fig. 3. Details of Marmon brakes. At the left is shown the brakes of Models 50 and 45, in which the spring seat [illegible] the cover plate of the brake has been [illegible]. Note the [illegible] method employed in adjusting the brakes, consisting of a worm and worm wheel sector, [illegible] of which is shown at one side. On the right is shown the brake of the new Model 33 car, showing [illegible] and rollers, releasing springs, solid shoes reinforced at the anchorage point by special spring steel strips. Studs, as shown, are used to support the brake shoes when in a disengaged position, to insure against dragging.

MARMON OILING SYSTEM

The Marmon system of force feed lubrication in which the same oil is forced through the bearings again and again is retained. In the larger engines, 50 and 45, a gear pump within the crank case is driven directly from the crankshaft timing pinion, draws oil through a strainer in the bottom of the large oil pit and, after forcing it through a pressure regulator, shown beside the forward intake valve spring, causes it to enter the three main crank journals through holes which register with grooves in the bushings. The crank pins, webs and main journals being drilled for this purpose, the oil passes through holes in the main journals and

is then distributed to the hollow crank pins by centrifugal force. A portion of the oil reaching the pins is used to lubricate those parts and the remainder passes through circumferential grooves in the pin bushings, through holes in the rod big ends and on up through copper pipes to the hollow wrist pins, where it lubricates the pin bearings and the cylinders, and from there drains back into the oil pit to follow again its circuit after passing through the strainer.

Cooling water is circulated by a large centrifugal pump, driven by gear from the exhaust cam shaft gear. The water from the pump enters the jackets just beneath the exhaust valves, where the temperature is highest, and passes out through a fitting held between the jacket cover plates at the tops of the cylinders. From this point it passes through a rubber hose to the top of a vertical gilled tube radiator; carried on trunnions to prevent distortion from frame flexures. The bottom chamber of the radiator is connected by hose with the intake of the pump. A large, rimmed propeller fan driven by a flat belt creates the necessary draft through the radiator.

The clutch transmits through a universal coupling enclosed with the clutch disengaging mechanism in the forward part of the aluminum change gear case. This comprises a clutch shifting collar, connected to the clutch pedal by a lever and link external to the casing, with ball thrust bearing and a small brake drum which is automatically engaged by a bronze shoe when the pedal is fully depressed. The function of the brake is to overcome clutch spinning while gear changes are being made and therefore protects the gears and makes for noiseless changes.

In the change gear there are used no other than annular ball bearings—six sets in all. The main divided shaft carrying the two sliding sets is located above the countershaft when in place in the casing. These two shafts are assembled with their bearings in two steel spiders, one at either end, and the spiders are bolted into the aluminum casing. Three forward and one reverse selectively controlled speeds are provided.

NOVEL REAR AXLE.

A large Hartford enclosed universal is carried by the rearward extension of the main change gear shaft and is connected

Fig 4. The new Marmon 32. Four cylinder motor, cylinders cast in pairs with water jacketed T-heads 4½ in. bore by 4¼ in. stroke. Self contained oil system, 3 speed reverse sliding gear change speed rear axle. Rear axle construction described fully in text. Motor arrangement very similar to the larger cars. 34x4-in. tires, front and rear. Semi-elliptic front springs, scroll end rear springs. With full equipment of lamps, Prestolite tank horn, oil cans, tools, jack and tire outfit $4210

Two independent jump spark ignition systems are fitted: one by storage battery, timer and quadruple coil; and the other a Bosch high tension magneto driven from the intake cam shaft in the same way as the water circulating pump.

Bolted to the rear face of the flywheel web is a casing enclosing the multiple disc clutch composed of nine steel and ten bronze rings, the latter closely studded with cork inserts. This clutch operates in oil and is exceptionally smooth in engagement and free from slip when engaged. The bronze rings are feathered on four keys in the casing and transmit to the nine steel rings feathered upon the driven drum.

by a propeller shaft to a second similar joint mounted on the bevel driving pinion shaft at the differential housing of the live rear axle. Several features which are original are incorporated into this rear axle construction. In the center of the photo of the rear axle parts, herewith, is shown a front view of what may be termed the axle proper, composed of the two seamless steel tubes and the central bronze ring to which the driving parts are bolted. Below and at the left is shown a side elevation of the driving and differential group. This group is assembled as a unit, driving gears, differential and annular bearings, and is then inserted from the rear into the central ring member of

the axle and bolted up by the studs shown, as is seen at the top of the picture, which is a rear view of the assembly minus the circular aluminum cover plate at the lower right.

THE DOUBLE BRAKES.

With the driving gear differential group bolted up, as shown at the top, the squared holes in the differential gears come in line with the center of the axle tubes. The upper view shows the axle complete with brakes and wheels but without the spring seats. These latter are split and bolted onto the axle tubes so that relative rotative motion is possible under spring action. Toward the outer ends of the tubes are bolted and keyed heavy arms which support the brake shoes. These are clearly shown in Fig. 3 of the brake details which also shows the circular flange to which the aluminum brake enclosing disc is bolted. Each wheel is carried on the axle tube by one large annular ball bearing, and to the wheel hub is bolted the flange of the square end driving shaft. This construction provides floating axle shafts and a well located bearing, in the middle plane of the wheel, a construction of great strength, light weight and simplicity.

A 17 inch diameter by 4 inch face, pressed steel brake drum is carried by each rear wheel. On the inner faces of these drums operate two sets of expanding brake shoes faced with brake belting. Each set, one of which is operated by the side lever and the other by the brake pedal, is spread into engagement by a cam with curved faces and the shoes are disengaged by a heavy coiled spring. As shown in the photo of this brake details Fig. 3, an arm bolted to the cast central part of the axle proper carries the ends of a short shaft and sleeve to which the cams are brazed. The worm and segment brake adjusters shown are representative of the refined design employed throughout.

A triangular torsion member, composed of two steel tubes, takes all braking and driving strains, cushioning them on the helical springs between which its forward end is held. This leaves the rear springs free to carry the load only, and submits the radius rods to no strain beyond that of maintaining axle alignment. The entire mechanism is replete with ingenious design and refinement of detail.

THE MODEL 32.

In the Model 32, Fig. 4, are retained most of the above distinctive features, but modified to suit the smaller and lighter car. The frame is of pressed steel carried upon semi-elliptic front springs and full-elliptic, scroll end rear springs. The same type front axle is used and the tire equipment is 34 by 4 inches, front and rear

The engine has pair cast, T-head cylinders 4½ inches bore by 4¼ inches stroke. The crank case is of the barrel type as in the larger cars, but the valve operating mechanism is direct acting. Valves have clear diameters of 2 inches. The oiling system is the same but the pump is outside the crank case and driven by spirals off the intake cam shaft. The carburetor is hung low to secure gravity feed from the fifteen gallon gasoline tank located under the front seat, and the pump and Bosch magneto are driven by the same shaft. This motion differs from the others more in the arrangement of the accessories and details than in the details themselves.

The motor is suspended from three points—directly upon a cross member of the frame at the front and upon a tubular transverse member at the rear of the case as shown.

THE CLUTCH, ITS LUBRICATION

Within a drum cast with the flywheel is located an expanding band clutch, the two segments of which are operated through spring returned levers and a sliding double inclined plane. Clutch lubrication is secured automatically. Connect-

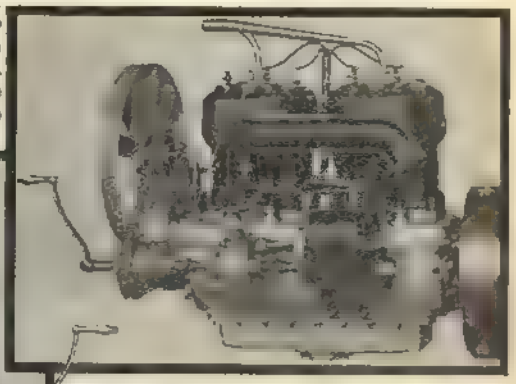


Fig. 5. Views of the Marmon 32 motor. The right showing the large diameter exhaust manifold and the transverse engine supporting tube, the mounting and driving of Bosch high tension magneto and the location and drive of the water pump. At the left is shown the intake side with the pipe for filling the crank case with oil, the bottom part of the case forming the reservoir. Oiling system described in the text. Attention is called to the short intake pipe, passages being cored in the cylinder castings.

ed with the clutch shifting collar is a long, circumferentially grooved piston fitting a small bore in the rear end of the crankshaft. This bore communicates with the rear main journal oil passage within the shaft, and, upon each clutch disengagement the piston is drawn and delivers a groove full of oil to the clutch housing.

Power is transmitted from the clutch spider to the propeller shaft through a universal joint of the yoke type enclosed within the spherical forward end of the combination torque and propeller shaft enclosing tube. The spherical forward end of the torque tube, the rear end of which is flanged and bolted to the change gear housing, provides a universal connection with the rear axle. Rods extend from just back of the sphere to the outer ends of the axle tubes and maintain proper relationship between axle and enclosing tube.

THE CHANGE SPEED AXLE.

The change gear of this car is enclosed in an aluminum housing bolted to the rear axle center ring, and gives three forward and one reverse speeds selectively controlled by long links and located by spring pressed balls, as shown in the photograph Fig. 6.

The Marmon Co. has so refined and compactly arranged the change gear group that only 18 lbs. of additional weight is added to the rear axle by this mounting. The constructional features noted for the larger axle are here extended so that, upon removal of the large circular aluminum cover plate the entire differential and driving group together with the entire change gear, can be completely removed through the back of the axle center ring in from fifteen to twenty minutes, the reassembling requiring a like time.

The spring seat attachments, brakes and brake operating devices, as well as wheel mountings are the same as in the larger cars, except that the brake adjustments are in this case, forward of the axle and the brake drums are only 14 inches in diameter. The brakes of this car are shown in the elevation of the axle end with wheel removed. Except for the relative difference in shoe diameters this view shows details of the reverse side of the brakes of the larger cars.

As shown in the elevation of the completed cars, the mechanisms are all securely protected from below and the spaces between fenders and frames and running boards and frames are closed by shields which prevent mud and water from reaching the body and running boards. These latter, as well as the floor boards, are of cast aluminum. Spark and throttle control levers are above the steering wheels and work over stationary quadrants. Button accelerators are fitted in the two larger cars, but in the smaller model acceleration is secured by a heavily knurled wheel projecting some ⅜ inch above the floor surface—a forward push of the foot rotates the wheel giving the desired accelerator action on the throttle. The change gear levers are all ball ended and emergency brakes are operated by a side lever of the "full" variety. All body finishing is made hard and durable by baking.

The materials through all three cars are of the highest grade as are the designs and workmanship. In developing the small car, Model 32, it has been the Marmon Co.'s aim to produce a light car of the highest grade to sell for a moderate price.

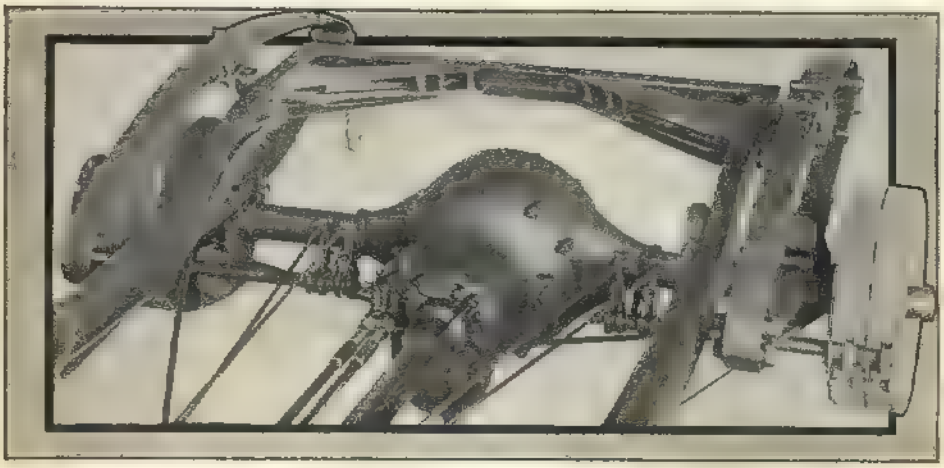


Fig 6. View of the rear end of the chassis of Marmon 32. This view shows clearly the transmission axle. Also the double brakes, both of internal expanding type operated upon a single drum. The propeller shaft housing acts as a torsion tube. The gear shifting rods are also shown, gear mesh positions being retained by spring pressed balls and suitable sockets. Construction fully described in text.

Overland 1909 Models

BY P. S. TICE.

The Overland Automobile Co., Indianapolis, Ind., is engaged in the production of three chasses to which any desired body will be fitted as ordered. These cars are all within the classification of medium powered, medium priced machines.

The first and smallest of this line is sold for $1,250, has 105-inch wheel base and is fitted with a 30 H. P. four cylinder engine, the standard body equipment being of the single rumble roadster type. To this car is applied the very descriptive phrase "Only Pedals to Push" since, aside from steering and motor control, all starts, stops and gear changes are made through the agency of three pedals.

The second car, selling for $1,500, is regularly fitted with a 5-passenger touring body and is equipped with the same engine as the car above, but the planetary change gear is here displaced by one of the three speed, sliding, selective type, and the wheel base is increased to 110 inches.

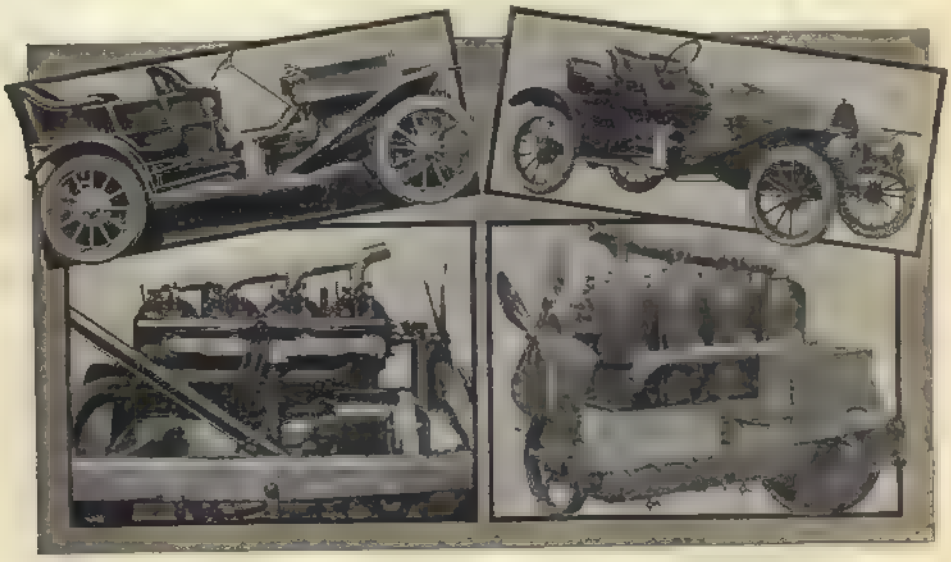


Fig 1 Views of 1909 Overland Models 30 and 32 and engine. Model 32 a 5 passenger touring car is shown at the left. Price with full equipment- lamps horn tools etc , is $1500. At the right is shown Model 30 with single rumble roadster body ironed for top. This car is unique as it has no side levers whatever— only pedals to push as described in the text. The motor is the same in each car Four cylinders, 4x4½ in 30 H P at 1100 r p m These views show the arrangement of the fan magneto, wiring and oiler.

In the third and largest car 116-inch wheel base, a six cylinder engine of 35 H. P. is employed. This car is fitted with any type of open body at the purchaser's option for the price of $2,000. The three speed, selective, sliding gear is standard in this car but if desired the Pedals to Push type will be fitted. This has been done in several instances, purchasers having so specified. These cars are designated as models 30, 32 and 34, respectively.

Full-elliptic scroll end rear springs and long semi-elliptic front springs are fitted in each of the above chassis; 3½-inch tires are also used in each case—those of the small car being 32 inches in diameter while those of the other cars are 34 inches.

Solid I-beam front axles with Elliot steering pivots and live, non-floating rear axles, shafts on four Hyatt roller bearings, are used in each model. Frames are U-section pressed steel of 3-32 inch thickness and are most strongly braced and reinforced by cross members. At the spring horns a tubular member is fitted for the purpose of protecting radiator and lamps from damage while at the same time materially strengthening the frame ends by distributing to both side members any shock received directly by one of them. Just back of the front axles are located the dropped cross members which support the radiators and the starting cranks. These latter are single pieces, bent and fitted with a grip which is free to turn with the hand; and the radiator, a vertical tube construction with large, free passages to allow of thermo-syphon circulation, is carried by two studs at a height of about ⅝ inch above the cross member in such a manner that leaks from frame distortion are eliminated.

Four inches to the rear of the radiator

supporting member is located a second which carries the forward end of the engine crank case to a single point in the center. Just to the rear of the engine flywheel and under the inclined floor boards is located another cross member. This latter is straight and of the full depth of the side channels. Diagonally placed pressed steel pieces are placed forward of and riveted to this cross member. These diagonal pieces each support an arm of the crank case and complete the three point suspension of the engine. In addition, these diagonal pieces greatly strengthen the frame against distortion in a transverse direction.

Between this engine supporting cross-member and the extreme rear of the frame there is another cross-piece identical with it, as to dimensions and bracing, which serves as an anchorage for the forward end of the torsion member in the two larger cars when sliding gears are used; but this member is absent in the small car or when planetary change gears are fitted to the two larger ones. The extreme rear member is of the full side frame depth at that point but is considerably wider in the flanges and has integral gusset plates. All these parts are hot riveted.

An interesting method for attaching the front fender irons to the frame is seen at the off-side of the photo of the six cylinder engine. A fitting providing two deep sockets is riveted to the upper flange of the frame side members, and into these sockets are inserted the inboard ends of the two forged fender irons. The running boards are carried by pressed steel step irons as shown, and to secure stiffness and stability are tied to each other by forged rods extending across underneath the fan. Forged brackets, hot riveted to the rear corners, suspend the frame upon the full-elliptic rear springs. All these cars are provided with long tubular radius rods having ball and socket forward ends and yokes at the rear. The only functions of these rods are the proper distancing of the rear axle and the communication to the frame of the rear axle driving thrust, all torque reactions being cared for by a special torque bar which has its forward end carried between stiff, helical springs. Front and rear fenders are in all cases fitted with an inner shield and an outer flange to obviate splashing of mud or water upon either the car body or pedestrians.

THE ENGINE

The engine used in models 30 and 32 is of the four cylinder, vertical, four cycle, water cooled type in which the cylinders are cast individually with integral water jackets and valves located side by side in single combustion chamber pockets. These cylinders are 4-inch bore by 4½-inch stroke and the engine is rated at 30 H. P. at a speed of 1,100 revolutions per minute. Each cylinder is retained upon the aluminum crank case by four studs and nuts. All working parts are carried by the upper half of the crank case which is provided with two heavy U-section tapering arms at the rear and is longitudinally split in the plane of the crankshaft. The crankshaft has five main journals, the four forward ones being of the same dimensions as the pins—1½ inches diameter by 2⅛ inches in length—the one at the rear, next to the flywheel, being 1½ inches by 3½ inches in length. The fan-blade flywheel is bolted to an integral flange and the timing pinion is retained by Woodruff key and pin. A considerable advantage is had, both to manufacturer and user, in the use of main and pin journals of the same size in that the same bushings may be used for either. These shaft journal bushings are of white bronze bearing metal and the upper ends of the drop forged rods are bushed with a high grade of hard bearing bronze. These upper connecting rod bushes work against hardened and ground, hollow steel wrist pins which are held from turning

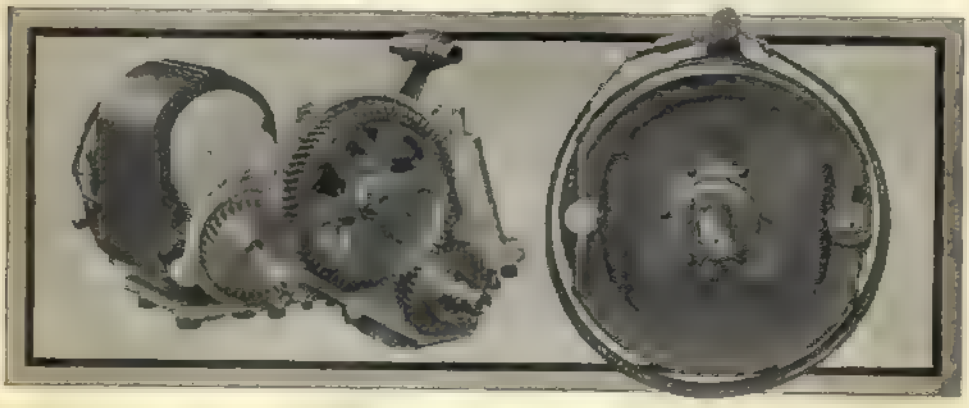


Fig. 8. At the left is shown the forward end of the 4-cylinder engine. Note the magneto and the spiral, half-time gears, which give a noiseless action even up to the end of the life of the gears. These are enclosed. On the right is shown the expanding internal belt lined brake and the external contracting brake used on Models 32 and 34.

and end motion in the piston bosses by two set screws threaded into both bosses and pins and kept from loosening by a wire passing through holes in the ends projecting within the hollow piston pins.

JOURNAL ADJUSTMENT

The five main journal bushings are held by caps bolted to the upper half of the crank case, which permits of the ready removal of the lower oil retaining half when adjustments are to be made. The connecting rods are drop steel forgings of I-section with wide flanges. Their big ends are split and held together by two studs and castellated nuts. Adjustment is had through the removal of shims, several of which are inserted when the boxes are first fitted. The main journal boxes and adjustments are in every way identical with the connecting rod big ends.

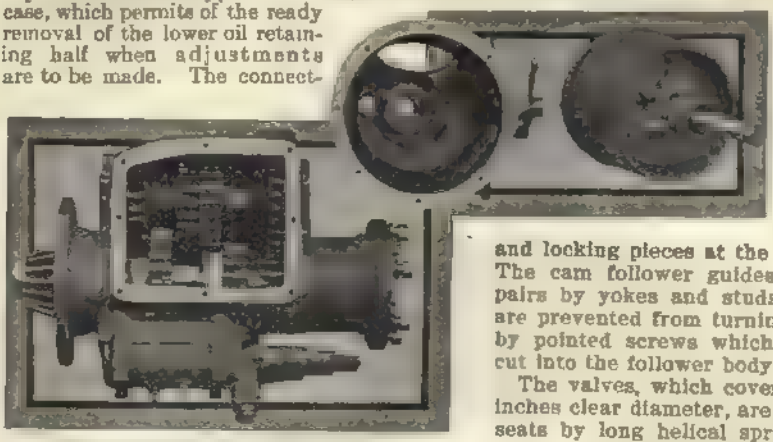


Fig. 3. Change speed mechanism of the various Overland 1909 Models. The sliding gears shown at the left constitute the change speed mechanism of the Model 33 and 34, this cam being bolted rigidly to the rear axle housing forming a transmission axle. Shifting rods are retained in position by hardened steel balls in sockets. Split washers are used for nut retention. The planetary is shown at the right and has an external adjustment for the contracting bands, and the high gear clutch is metal to metal and of cone type, can be quickly adjusted by rotating the cone finger spreader right or left-handed, its position being locked by a pin engaging holes, as shown and described in the text

The pistons are made as light as possible and have the same length as the stroke—4½ inches. At the upper ends are three diagonally split rings, held from turning by pins, in individual grooves. At the lower ends are four grooves which set to distribute oil to the entire cylinder circumference. For the purpose of securing an engine of minimum height, without a sacrifice of connecting rod length, the piston pins are located in bosses well toward the tops of the pistons.

SPIRAL HALF-TIME GEARS

In the photographic view of the timing gears and magneto it will be noted that all gears are of the helical variety. This type of gear introduces a slight thrust, which for the loads carried at these points is practically negligible, but permits of quietness of operation for the entire life of the gear. As shown, the cam shaft gear which is of bronze is key and nut retained upon the end of the cam shaft. This shaft together with its eight cams is turned and milled from a solid bar and afterward hardened and ground. It is carried in three bronze bushed journal boxes and operates the valves through intermediary cam followers which have hardened rollers contacting the cams and hardened adjusting and locking pieces at the valve stem ends. The cam follower guides are retained in pairs by yokes and studs. The followers are prevented from turning in their guides by pointed screws which enter V-grooves cut into the follower body.

The valves, which cover openings of 1⅜ inches clear diameter, are returned to their seats by long helical springs. Over each valve is a hexagon headed plug; those over the exhaust valves carrying priming relief cocks, and those over the intake valves the spark plugs.

THERMO SYPHON COOLING.

The cooling water is circulated by thermo-syphonic action and enters and leaves the jackets through aluminum manifolds seating over 1⅛-inch ports in the jacket walls. As before mentioned, the radiator tubes are set vertically and are of quite large capacity, which fact together with the free jacket spaces and passages and the employment of a flat belt driven radiator fan permits a rapid natural circulation through the system.

Fig. 4 Overland Model 30. Floor board, dash and control pedals. The dash is unobstructed but for coil and switch. Floor boards inclined as shown, complete control is by pedals from left to right, as follows: The ratchet-locked brake pedal controls expanding hub brakes. High-speed pedal engages the direct drive clutch when pushed forward. Low-speed and reverse pedal giving reverse when pressed down and backward, and low-speed head when pushed forward. It is interconnected with the high speed pedal so that the motion of either pedal automatically disengages the speed controlled by the other pedal. No side levers whatever are used.

The Remy system of double ignition by battery and magneto with a single set of plugs is employed. High tension wires are conveyed through a metal conduit from the magneto distributor to the plugs. Mixture is supplied the cylinders by either a Schebler or Breeze carburetor set below the frame level and communicating by brass pipe with an aluminum manifold. Gasoline is carried under the front seat in a tank of 12 gallons capacity.

LUBRICATION

The cylinders and rear main crank journal are each fed with oil from a large capacity force feed lubricator with individual pump. This lubricator is mounted on the left crank case arm on a bracket bolted to the case at about its mid-point. The pumps are driven by a ratchet motion actuated by an eccentric on the rear end of the cam shaft. Owing to the drawing of the pistons at the end of each down stroke, any excess oil fed the cylinders drains down into the crank pits and lubricates the connecting rod big ends, forward main journals, cams and cam followers by splash. Two drain cocks and two level indicator cocks are fitted into the lower part of the crank case, which is held to the upper part by 24 three-eighth inch studs and nuts.

In the small car with planetary change gear, the propeller shaft is provided with two universal joints. The forward of these is just at the rear of the flywheel to which its driving portion is bolted by the same bolts which hold the wheel to its flange. Both these joints are of the sleeve and trunnion type, the trunnions being integral with the shaft. The sleeve member of the rear universal is keyed and pinned to the shaft projection shown in the view of the planetary change gear. The propeller shaft is located endwise between two helical springs and thus any motion of the axle relative to the frame is readily compensated for.

PLANETARY GEAR OF ROADSTER

The planetary change gear, which gives two forward speeds and one reverse, is of the cell spur type and is enclosed in the aluminum case shown on its left. This case fits over the gear in such a manner that the shaft projection shown is journaled in a Hyatt roller bearing within the steel bushed counter bore seen at the back center of the casing. The front end of the gear and the back end of the casing are here presented to the readers. With the gear in place in its casing, the bands shown register with their respective drums. Adjustment of these bands is made through screws and locknuts outside of the case. The two short levers shown external to the casing operate the low speed and reverse brake bands. The high speed direct drive clutch is operated by a sliding shaft which passes through a bushed hole, seen on the right of the shaft bearing counter bore, and engages a fork formed on its inner end with the groove seen in the clutch engaging cone. This cone spreads the clutch fingers shown and forces a bronze faced cone into engagement with the female coned portion of the reverse speed drum. This locks all together and gives a direct drive.

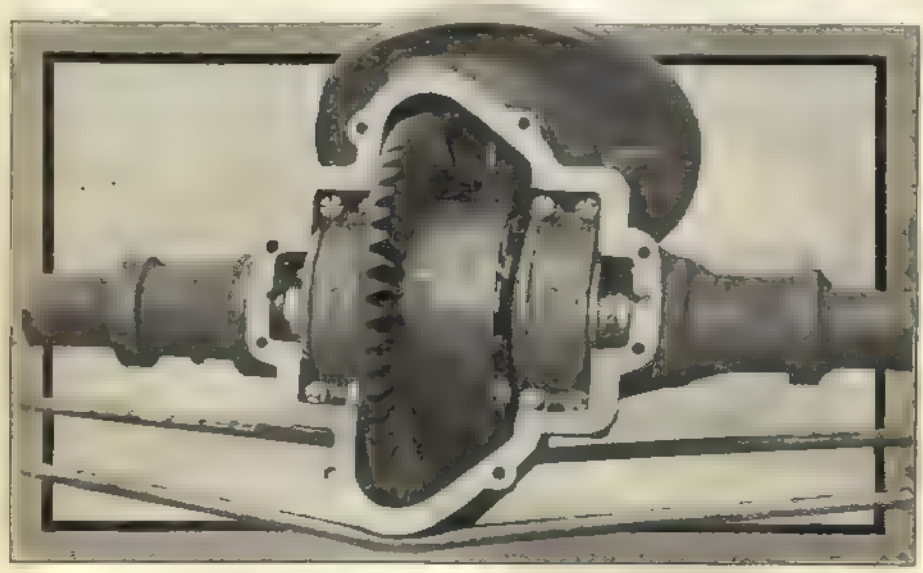


Fig. 5 Overland rear axle used with planetary changegear. Note readiness with which inspection can be made and driving gear together with the differential and its bear ings be removed, if necessary. Castellated nuts with spring washers are freely used.

AN INGENIOUS ADJUSTMENT DEVICE

Adjustment of the high speed clutch is obtained in a very ingenious way, i. e., the three clutch fingers are mounted on a spider threaded upon the bearing box on

which the clutch cone is slidably mounted. A spring pressed pin is also carried by this spider in such a position that it registers with a series of equidistant holes drilled in the web of the cone. If now it is desired to change the adjustment of this clutch the spring pressed pin is pulled out and the spider either backed or run forward on its thread until the adjustment desired is obtained when the pin is allowed to again enter one of the holes, thus automatically locking the adjustment. This pin is reached through the large hand hole shown in the top of the casing. The third hole in the front of the casing is for the attachment of the tubular torsion brace.

THE REAR AXLE CONSTRUCTION.

The sleeve of the bevel driving pinion is carried in two annular ball bearings of the silent type and its thrust is taken up in a special ball thrust bearing. This pinion meshes with the driving gear when the large flange of the gear case is bolted up to the forward flange of the differential housing, as shown in the view of the rear axle with top cover removed. The bevel driving gear, together with the Warner spur differential, is carried in two sets of large diameter, short length Hyatt rollers, supplemented by a ball thrust bearing on each side.

The differential housing is of cast steel and has securely riveted into it the heavy seamless steel axle tubes upon which are secured the spring seats and brake supporting and enclosing discs. From the brake supports run two truss rods, one under and one to the rear of the differential housing. This car has but one set of what may properly be called brakes. These are expanding shoes enclosed within the rear wheel drums. Special attention has been given to making these brakes powerful and the reverse of the planetary change gear has been designed with its use as an auxiliary brake in view. This is logical on the part of the makers because it is the usual thing for users to so employ the planetary gear.

The driving shafts are carried in Hyatt rollers at their outer ends and are tapered for a key and nut wheel attachment. The set of hub brakes is balanced by a whiffletree extending across the chassis and resting in slotted brackets.

MODEL "32."

The touring car model 32 employs the three speed, selective, sliding change gear. In this car the control is conventional—side gear shift and emergency brake levers with clutch and brake pedals. In this car a somewhat different rear axle is used although the essentials of driving gears, differential and manner of journaling the axle shafts and attaching wheels remains the same. In this case, also, the change gear together with the bevel driving pinion is made up as a sub-unit and bolted by a large flange to the differential housing. The sliding change gear case is, however, made of bronze instead of aluminum. From the photo herewith, in which the large cover plate is removed, a very good idea is had of its construction. Annular ball bearings are used one at each end of the countershaft, one taking the radial load of the bevel pinion and supplemented by a ball thrust bearing, and two on the short driving portion of the main shaft. Where this shaft is divided, the rear squared portion is turned down and journaled on a roller bearing within the primary driving gear of the driving portion.

The forward end of the change gear case is also flanged for bolting up to a tubular torsion member which encloses the propeller shaft. The forward end of this torsion tube is formed into a sphere which is universally socketed in a bracket bolted to a frame cross-member. Inside the sphere is located the single universal joint. The propeller shaft is carried at its for-

Fig. 6. Overland Model 34. Six cylinder, 4-seated roadster. General chassis construction same as the sliding gear models, with the exception of longer wheel base. Cylinders 3½x4½, completely equipped, $2000.

ward end in a Hyatt roller bearing. These joints are of the trunnion type, the trunnioned piece being the driver, which permits of relative end motion for clutch engagement and disengagement without the addition of a special sliding joint. Power is transmitted to this joint by a leather faced cone moving into the flywheel for its engagement. A single helical spring surrounding the crank shaft extension serves to engage the cone with the flywheel.

MODEL 38' CONTROL.

The side levers, brake and change gear, are secured to a shaft and sleeves, respectively and operate the brake and change gear links through short levers attached to the inner ends of the shaft and sleeves. The side brake lever connects by a whiffletree evener to a pair of internal expanding shoes faced with brake belting; and the long link rods from the short levers noted above operate the two sliding sets through sliding rods and forks within the gear case. The sliding rods carrying the shifting forks are set close together and are notched in such a manner that gear pistons for each are located by a single spring pressed steel ball. These notches are so cut with reference to the ball outline that either sliding rod and its gear set can be moved into engagement only when the other is in its neutral position. The entire change gear is very compact and of light weight without sacrifice of gear diameter or face width

The gear shift sleeves and brake shaft locate the short levers so that there is no tendency toward unmeshing of gears under any conditions of travel.

Fig 7 Two views of the 6-cylinder, 1909 Overland motor Cylinders cast separately 3-point engine suspension magneto ignition, force feed lubrication The details of engine construction, with exception of smaller bore and stroke and two additional cylinders, is the same as on the 4-cylinder engine.

Above the large hand wheel, on a stationary quadrant, are the throttle and spark timing levers.

SIX CYLINDER CHASSIS SIMILAR.

The design of the running gear, change gear, and axles for the six cylinder car is identical with the above for the larger four cylinder car. The longer wheel base and the six cylinder engine mark the only differences.

In the six cylinder engine are employed individually cast cylinders of the same form as used in the four but of 3½-inch bore and 4½-inch stroke. The same connecting rods are used as is also a six throw crank with pin and journal dimensions the same as in the four throw. In fact, with the exception of the increased number of cylinders of smaller bore, the two designs are the same throughout.

With the 1909 Glidden Tour nearly ten months hence, automobile manufacturers have already begun preparations for the great American touring classic. W. H. VanDervoort of the Moline Automobile Company, East Moline, Ill., and auditor of the American Motor Car Manufacturers' Association, writes Chairman F. B. Hower of the A. A. A. touring board that three Moline Nineteen Niners will be entered and asks that numbers 1, 2 and 3 in the runabout class for the Hower Trophy be given these cars.

The K-W Ignition Co. of 40 Power Ave., Cleveland, Ohio, has recently doubled its manufacturing space and is installing additional machinery and apparatus preparing for an increased business for 1909. This company advises us that its business during 1908 shows an increase of 80 per cent. over that of 1907 in spite of the general business depression. The new facilities include an impregnating plant to be used in impregnating all K-W Coils as well as the windings of K-W Magnetos, as this company does not depend upon boiling their coils in hot paraffine or other wax for insulation.

The Great Western 2 and 4-Cylinder Cars

The Model Automobile Co., Peru, Ind., U. S. A., for fifteen years manufacturer of gas engines of from 2 to 500 H. P., has placed on the market a line of cars known as the "Great Western," which is supplied in several different models. These machines are fitted with four-cylinder and two-cylinder opposed motors, and one of the chief features claimed for them is the power as compared to weight, making them exceptional hill climbers. This will be seen when it is stated that the company claims the 4-cylinder machines will climb as high as 25 per cent. grades on the high gear and will pick up speed on the high gear on 18 per cent. grades, and all this without gearing the car so low as to require high engine speeds.

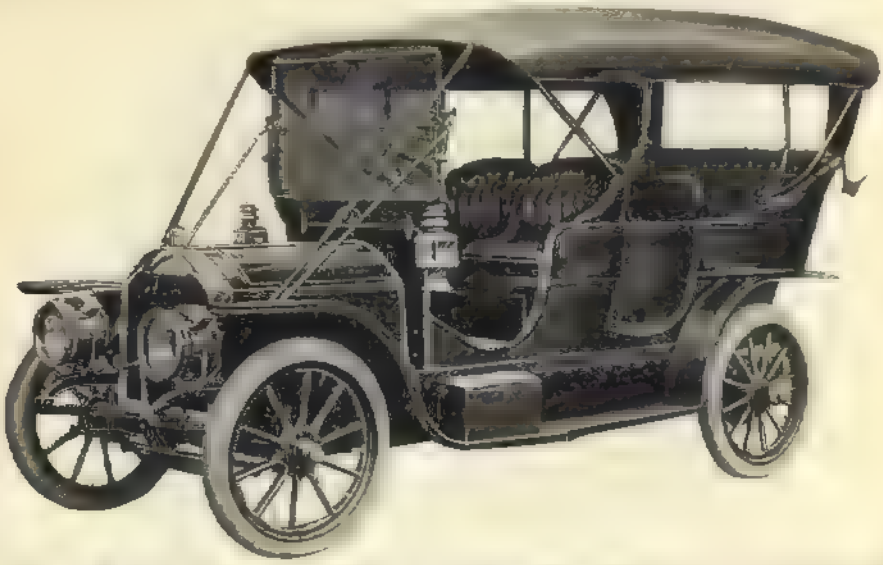


Fig. 1. [illegible] Great Western Model 16 motor 4 cylinders [illegible] cycle water-cooled, 5 x 5½ ins., 50 H. P. [illegible] system by Bosch high tension magneto, storage batteries coils and two sets of spark plugs; positive [illegible] and also splash, [illegible] gear selective type [illegible] speed, 3 speeds forward and one reverse, [illegible] 2[illegible] discs 9½ ins. in diameter, [illegible] shaft drive mounted on large ball bearings, floating rear axle [illegible] ball bearings, wheel base 122 in. [illegible] x 4 ins. front and 36 x 4½ ins. rear; two large internal and two large external brakes on the rear [illegible] each wheel having a braking surface of 185 sq. ins. [illegible] Price fully equipped with two [illegible] headlights, generator, two oil side lamps, tail lamp, tool kit, jack, pump and tire repair kit $4000 top and combination wind shield extra

The accompanying photograph, Fig. 1, shows the "Great Western No. 16" with glass front and top. It will be noticed that the tonneau is provided with extra revolving seats, making the passenger capacity seven. The folding seats can be quickly removed if desired, making a five-passenger car. The seats are commodious, the width of the front seat cushion being 18 inches and the length of the front seat cushion, divided, 44 inches. The top of the tonneau seat is 66 inches and the bottom 53x20 inches. The floor space in front of this seat is 27 ins. and the door is 21 ins. wide. The standard finish is automobile red with black trimmings, and with this finish and the equipment, consisting of two acetylene headlights, one acetylene generator or gas tanks, two oil side lamps, oil tail lamp, tool kit, including jack, pump and tire repair kit, the price is $4,000. The top is $175 extra and a triple combination wind shield fitted is $95. The motor of this car is four cylinders and rated at 50 H. P.

The chassis of Model 16, slightly altered, the transmission being of the progressive type and using a three-plate metallic disk with cork insert clutch, is known as Model No. 15. This car with practically the same equipment as Model 16 sells for $3,500

The two-cylinder 24 H. P. No. 14 car has its motor located lengthwise under the body. Economical fuel consumption is one of the features claimed for this machine. The drive is by means of planetary gear and a centre chain to the rear axle. Fig. 2 shows the external appearance of this two-cylinder car, the tonneau of which is detachable, and in its place a torpedo deck may be used, making a powerful runabout of graceful lines. An extra top is also supplied as a special when the car is changed into a runabout. This combination car is offered especially for the use of medical men who use a car with the tonneau on during the summer and change the same into a runabout with top for winter work. The wheel base is 104 ins., tread standard and the car complete weighs 1800 pounds.

The extension top is $100 extra and folding wind shield $70. The torpedo deck is $40. The car without special fittings, but with an equipment including two gas lamps, a generator, two side oil lamps, horn, set of tools, pump and tire repair kit, sells for $1,350.

The same chassis, but fitted with a different body, seating five passengers, is known as No. 12. This car, with a similar equipment, sells for $1,250. It is also arranged to take a torpedo deck which sells for $35 extra. This completes the line of four models built on two distinct chasses.

THE FOUR CYLINDER MOTOR.

In Fig. 3 is shown the exhaust side of the four-cylinder 50 H. P. motor of Models 16 and 15. Cylinders are 5x5½ ins. and are cast separately from the best grade of close-grained iron. Special attention is given to the moulding of these cylinders, none but baked cores being used. The cylinders are carefully bored slightly under diameter and the lower ends where they fit to the crank case are finished. They are then laid aside to allow them to obtain their normal shape, after which they are placed in a jig and the bore ground to exact size so that the cylinders are claimed to be absolutely interchangeable. The water jackets are cast integral with the cylinders, giving a large volume of water at all points, but especially so around the exhaust valves, insuring uniform cooling. The crank case is cast from the best grade of aluminum alloy and wherever possible I-section reinforcements have been used, making it extremely light but rigid. The working stresses of the cylinders do not come on the case, but are taken up by steel rods, the four rods holding one cylinder, also serving to hold the adjacent crank shaft bearing so that the bottom half of the case can be removed without disturbing the crank shaft or its bearings. As will be seen from the illustration, the upper half of the case is provided with two extremely large hand holes and has integral channel section arms which support it upon the frame. The bearings are made of nickel babbitt cast in steel dies which are brought to a certain temperature and the metal is then cast under air pressure of about 150 lbs They are provided with tongue and grooves for taking up wear and are interchangeable

The crank shaft has five of these bearings, which are each 1¾ ins. in diameter. The pins are hollow and the bearing surfaces, flanges and collars are accurately ground. This crank shaft is offset from the centre line of the cylinders, thus relieving the engine of the excessive side thrust due to the angularity of rod on the working stroke. The pistons are long and light, weighing but five pounds finished, and are cast from the same quality of metal as the cylinders. These are also turned almost to size and then allowed to anneal, taking out the unequal strains in the metal and are then finished to size by grinding. They are each fitted with four eccentric rings with step joints, these rings being ground on three sides. Oil grooves are also cut in the pistons at their lower ends. The piston pin is hollow, hardened and ground, and is prevented from side slip by a steel snap ring, thus making it impossible for the pin to score the cylinder.

The connecting rods are steel drop forgings of I-section. The piston end is fitted with a bronze sleeve bushing, while the crank pin end is provided with a bearing of similar construction to those of the crank shaft. The cam shaft is carried in three main bearings which are so ar-

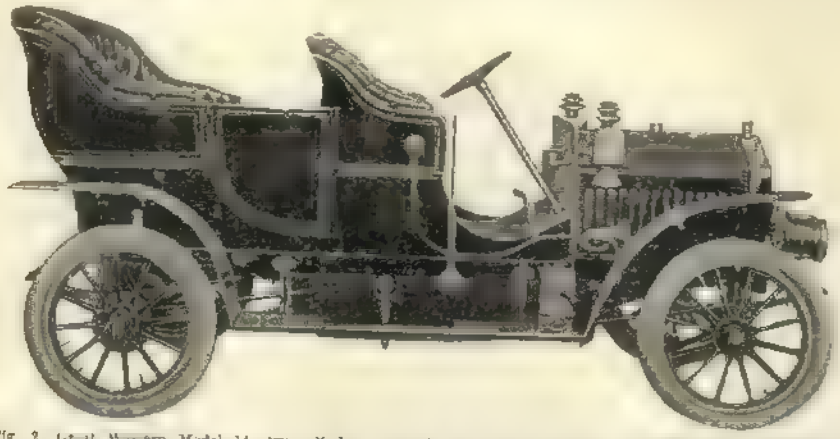


Fig. 2 Great Western Model 14, two cylinder opposed 5 x 7, 24 H P water cooled motor, lengthwise under the seat planetary change speed gear, two speeds forward and reverse without internal gears, drums 1[illegible] ins. diameter multiple plate clutch for high speed and metal to metal contracting bands for the other speeds, all operated by one lever; drive to rear axle by a center chain, jump spark ignition from storage battery on dash steel box on running board, a double dash coil being used. 18 gallon gasoline tank under the hood front wheels are ball bearing rear wheels and axle on roller bearings double acting brakes on the rear hubs and transmission used as an emergency brake, guaranteed for this use divided front seat passenger capacity [illegible] equipment, 3 gas lamps and generator two oil side lamps horn tools pump and tire repair kit price $1,[illegible] Weight complete, 1[illegible]90 lbs. Extension top, folding wind shield and torpedo deck to take the place of the removable tonneau, are extra.

ranged that by loosening nuts on two of these bearings it can be completely withdrawn with all cams and the commutator gear upon it, without disturbing any of the adjustments of the motor. The cams are tempered tool steel and are separate from the shaft proper.

The exhaust manifold is shown in Fig. 3. It consists of a single conduit from each chamber having a gradual sweep into the main pipe, the diameter at the cylinders being 1½ ins. and gradually increasing to 3 ins., there being no sharp bends The half-time gears are all separately encased and are provided with special lubrication, their compartment not being connected in any way to the interior of the crank case.

OILING

Lubrication is provided by splash and also by force feed to the cylinders and main bearings. The end main bearings are also provided with ring oilers and cups so placed on the inside of the crank case that there is a continuous flow of oil thru the bearings when there is oil either in the case or in the oiler. The bearing next to the fly-wheel is fitted at its outer end with a cup-shaped ring or cage which catches the surplus oil which might otherwise work out on to the fly-wheel, this oil being carried off by a drip-pipe. The ring oiling chambers are provided with draw-off cocks and the lower portion of the crank case is divided into two compartments, each of which is also provided with a drain. The mechanical sight feed oiler supplies oil thru independent leads to each cylinder, main bearings and crank case, the oil being delivered by a positive pump forcing it at a pressure of about 150 lbs The crank case is also provided with separate filling cups.

Accessibility is one of the chief features of this engine, as will be seen from the readiness with which the cam shaft can be removed or the bearings reached from either side of the crank case, also from the fact that the bottom half of the crank case can be removed or any one cylinder without interfering with any of the other parts. It is claimed that every part of this motor is built to jigs and gages and that all parts are therefore interchangeable, and that even the pistons, cylinders, and all bearings are so accurately ground that they can be interchanged without interfering in any way with the perfect working of the motor.

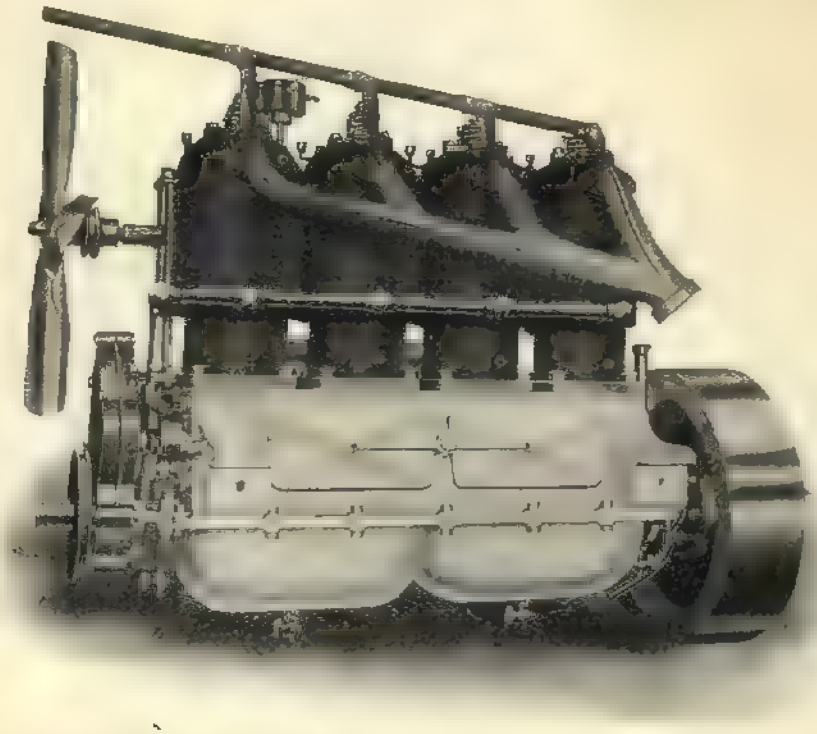


Fig 3 Exhaust side of Great Western 4 cylinder motor showing the well designed exhaust manifold. This motor is 5 x 5½ ins.; valves are operated from a single cam shaft which, together with its driving gear, can be easily removed thru the end of the case The inlet valves are in cages in the heads of the cylinders and are operated by overhead rockers, the top of the valve stems being fitted each with a ball upon which the rocker thrust is taken, so that there is no tendency to cause the stem to bind. All parts are made to special jigs and are claimed to be absolutely interchangeable. Valve lifting rod cages, hand hole plates, etc., are held in place by yokes, so that all can be quickly removed A special oiling system is employed as described in the text.

CLUTCH.

A multiple disc clutch containing 29 disks, 9½ ins. in diameter, housed in a dust and oil-tight case, transmits the power from the engine. The size of these discs is such that the life of the clutch is practically unlimited and it never requires adjusting, as this is taken care of by the spring. From the change speed gears the power is transmitted thru a driving shaft provided with dust-proof universal joints of extra large size and a flexible connection is also interposed between the clutch and change gear. This is done, not only for the purpose of relieving these parts of any undue strains but also making it possible to easily and quickly remove any of these units. This entire mechanism is protected on the under side by a metal pan, and same is so arranged that it is unnecessary to remove it in case it is necessary to take the motor clutch or change gear case out of the car.

ins. in diameter, of hickory, ten 1¾ in. spokes front and 12 spokes rear, and tires are 4 ins. on the front wheels and 4½ ins. on the rear.

Semi-elliptic springs of unusual length and made of the best alloy steel are used at both front and rear. Both springs are shackled at their rear ends and connected positively at their forward ends. They are mounted on spring seats that move freely upon the axle, adding easy riding qualities to the car, at the same time relieving the springs of strains which they are not intended to bear.

The steering gear is of the irreversible worm and segment type, all parts of drop forged steel and encased in a dust-proof steel housing. These gears are made by the Warner Gear Co., of Muncie, Ind., and need no further description. The frame is cold prest channel section nickel steel with four cross members. The flanges at the junctions are integral gussets and are

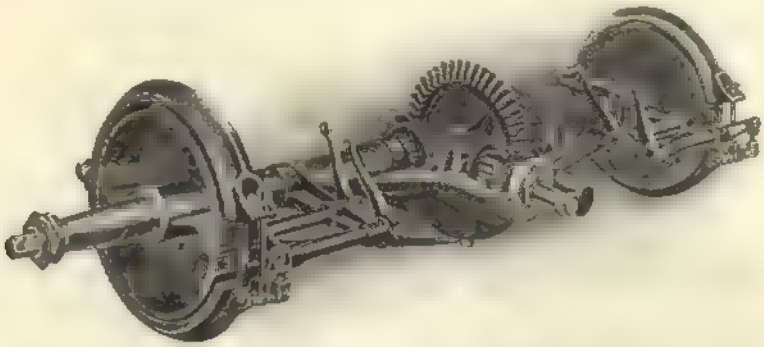


Fig. 6. D[illegible] of th[illegible] of the Great Western [illegible] models. This axle is of the floating type driving the wh[illegible] by drums of squared ends. A spur gear differ[illegible] The entire con[illegible] is mounted on ball bearings. The large brakes are operated by pull rods to the small levers and shafts which are shown mounted on the rear axle housing.

AXLES.

The rear axle is of the live floating type, bevel gear driven. The rear universal joint forms a slip joint, thus allowing for the action of the springs. The differential is of the spur gear type, three pairs of pinions being used. The rear axle housing is provided with an aluminum cover, which being removed, makes all the gears accessible. The wheels are attached to the driving shafts by means of squared ends, these driving shafts carrying none of the weight of the car. Both the ball thrusts and bearings of these shafts are housed in dust-proof cases.

The front axle is a one-piece nickel steel I-section drop forging. The pivots and steering knuckles are mounted on large ball bearings and the wheels are toed in about 2½ degrees, giving easy steering. The steering knuckles are very long of the clevis type and pinioned close to the wheels. These are lubricated by an oil cup at the top of the steering pivot. The wheel spindles are extra long with double thrust ball bearings protected by dust collars and caps. The wheels are 36

cold riveted, making a very rigid and reliable construction. A sub-frame of similar material and design is used to support the engine and change speed gear. The main frame is narrowed at the front, increasing the steering range. The motor can be removed without removing the radiator.

BRAKES.

Two large external expanding brakes operated thru eveners are supplied on the rear wheel drums. These are operated by means of the emergency lever at the side and hold either forward or backward. Two double-acting internal foot brakes controlled by pedal are also operated thru the equalizers and are on the inside of the same drums. The actual breaking surface on each wheel is 185 sq. ins., the brakes being large in diameter, affording not only powerful brakes, but ones which will have long life. The brake rods are all on the inside of the frame, leaving the outside of the car without rods or cables. This is accomplished as shown in the plan view, Fig. 5, and the rear axle view, Fig. 6, by means of short rods which operate the

toggle expanding links, these rods being supported on brackets rigidly secured to the rear axle housing. Large prest steel fenders of graceful design fitted with shields extending between the guards and the body and also from the front to the rear between the running board and the frame are used. This construction makes it impossible for mud to splash on the body or passengers.

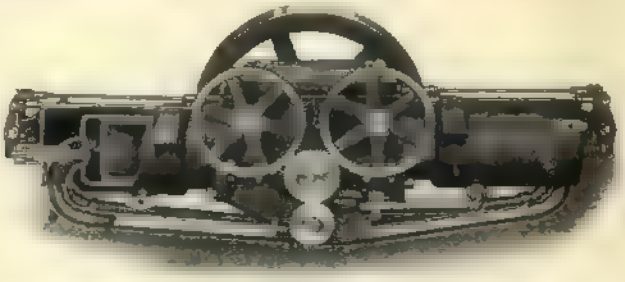


Fig. 7. View of the 24 H. P., 5 x 7 two-cylinder opposed motor of the smaller models of the Great Western cars. This motor is claimed to be exceptionally economical of fuel. One cylinder is shown partly in section, showing the valve arrangement and the gear housing is also removed showing the half time gears and the method of driving the circulating pump. All valves are mechanically operated.

The other model on this same chassis, No. 15, differs very slightly from the previous model, mainly in the body arrangements, which are not quite as elaborate, and the clutch is a three-disc metallic one fitted with cork inserts, while the sliding gear, giving three speeds forward and one reverse, is of the progressive type. The wheel base of this machine is 118½ ins and the clearance is 11 ins. The car weighs, complete, 2,900 lbs. and sells for $3,500. Special revolving seats for the tonneau, making the passenger capacity seven, sells for $48 extra.

THE TWO-CYLINDER MODELS.

The two-cylinder cars are fitted with an opposed motor of 5x7 ins., rated as 24 H. P. It is claimed the same grade of material and workmanship is used as in the other motor. These long stroke motors are said to give exceptional pulling power at slow speeds and also economy and smooth running. In regard to fuel consumption it is claimed that on a 600-mile trip over very bad winter roads in the west with four passengers the car averaged a little over 15 miles to the gallon, which, considering the road conditions, was exceptional.

Fig. 7 is a view of the external appearance of this motor. Fig. 8 shows a plan view of the complete chassis, showing the arrangement of the engine lengthwise under the body, the planetary change gear and the single centre chain drive to the rear axle. This planetary change gear is designed without internal gears, spurs being used. These gears are 7 pitch with 15-16 in. face, made of steel, properly hardened and guaranteed to stand the strains of using the transmission as a brake. The transmission shaft and the crank shaft are in separate parts, making it possible to remove either the transmission or the motor without interfering with the other parts. A socket in the fly-wheel is turned to receive the flange on the shaft so that the two can be rigidly bolted together. The gear is claimed to be very

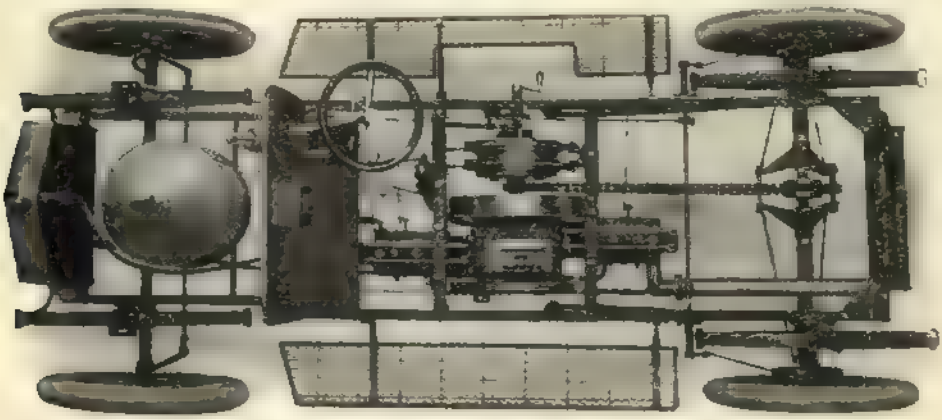


Fig. 8. Plan view of the Great Western two-cylinder chassis, showing the arrangement of the engine on its prest steel cross members, the planetary change gear and the center chain drive to the rear wheels. A hood of the four-cylinder type is used but nothing is placed under it except the large gasoline fuel tank. Q. & C. Stanwood steps with prest steel step hangers are fitted and full elliptic springs of large size and opening are used all around. One brake is fitted to each rear wheel, and the planetary, which has no internal gears, is guaranteed to be used as an emergency brake, thus simplifying the control.

noiseless, as the case is perfectly oil tight and no internal gears are used. The usual friction bands for both the slow-speed and the reverse are employed, but are of bronze and are suspended from a prest steel cross member so that they cannot drag. These bronze bands act against the cast iron drums, which are 12½ ins. in diameter, so that very little pressure is required to make them positively grip. The high speed clutch is of the three plate metallic disc type. This is metal to metal and well lubricated so that it takes hold gradually, but when once engaged does not slip. The frame is cold prest nickel steel, channel section, with similar cross members, including the cross members on which the motor and transmission are mounted. Even the step hangers are prest steel and the steps or running boards are of the Q. & C. Stanwood make, which allow the dirt to fall thru.

Full elliptic springs are used both front and rear, giving plenty of freedom to the body, and, combined with the long wheel base, make an easy riding car. The radiator and tank are combined. The radiator contains 132 tubes and it is claimed does not overheat when running continuously on slow speed. The pump throws three-quarters of a gallon of water for each hundred revolutions of the motor, this rapid circulation combined with the large radiator giving exceptional cooling qualities. There is nothing under the hood but the 25-gallon gasoline tank. External brakes acting directly on drums on the rear wheels are used. A thumb button on the brake lever makes it possible to lock these brakes so that the car can be left standing on a grade if desired.

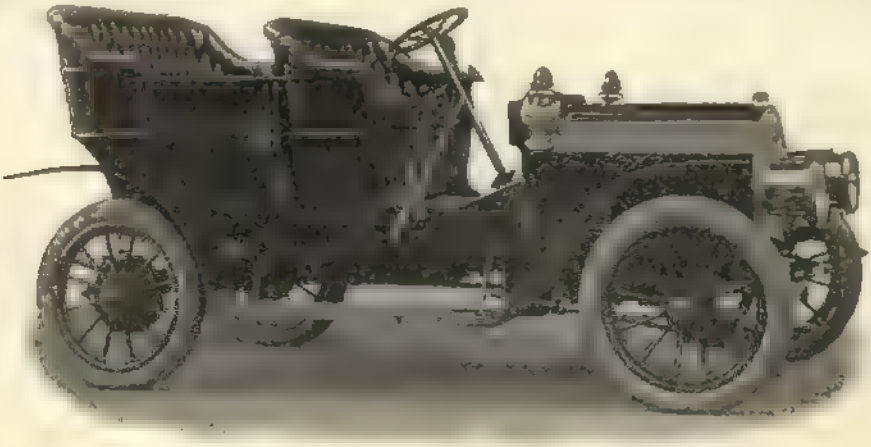
Ignition is by jump spark, two sets of batteries in a metal box on the running board being used. The steering gear is of the screw and nut type and is, of course, practically irreversible. The body is of special design and is claimed to be exceptional for a car of this price. The tonneau is removable and a torpedo deck can be used instead, making a runabout. The car weighs, complete, 1800 lbs. and sells for $1,350.

The same two-cylinder chassis, except that the wheel base is 100 ins. with a frame of angle steel and a somewhat different body, but otherwise practically the same as No. 14, constitutes the No. 12 model. This car weighs 1,800 lbs. and sells for $1,250.

"Bertolet" 35 H. P. Convertible Car

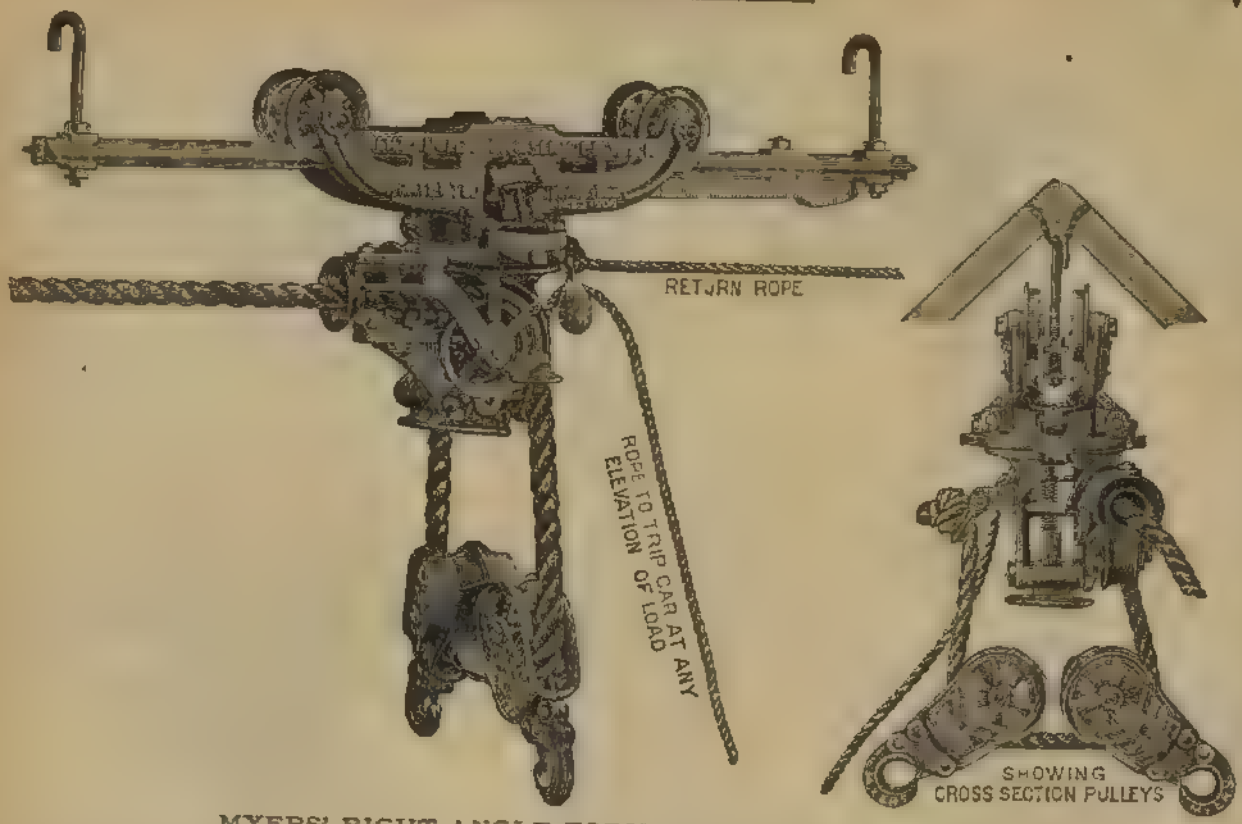
Dr. J. M. Bertolet of Reading, Pa., has placed on the market a convertible 35 H. P., 4-cylinder gasoline car, which can be used as touring car or runabout, a rear deck being furnished to take the place of the rear seats when the car is used as a runabout. With touring body, folding top, lamps and horn, also rear deck for converting into a runabout, the price is $2,400, or it can be had as a touring car without the rear deck, but including folding top, at $2,250. As a runabout without top the price is $2,000

The body is so ingeniously designed and constructed that its interchangeability is not perceptible in either touring car or runabout form. The body is made of the best obtainable materials, handsomely finished and trimmed with the best hand-buffed leather. Soft edged spring seats and spring seat backs add to the luxuriousness of the car. The lamp equipment and the horn, which are included in the price, are first class and in keeping with



"Bertolet" Touring Car, 35 H. P., 4-cylinder motor, cylinders cast in pairs and offset, bore 4¼ inches, stroke 5½ inches. The price with touring car body is $2250 including folding top, lamps and horn. This car is convertible into a runabout and is furnished with a deck for this purpose and full equipment as mentioned for $2,400.

HAY CARRIERS.



MYERS' RIGHT ANGLE FORK AND SLING ELEVATOR.

Swivel and Reversible Unloader, Malleable Iron, Aluminum Bronzed Finish, Red Striped, Frame is Single Beaded to Strengthen it. ⅞ inch Turned Steel Axles. Lock is constructed to prevent chafing of the Rope and Adjustable to any size Rope from ¾ to 1 inch. Elevates the Load at Right Angles with the Track so that when **the Load is discharged in the Mow, it lays parallel with the Load on the Wagon; the Right Angle Fork and** Sling Elevator Operates Automatically and is Tripped by the Sling Pulley striking the Plate under the Carrier. a Separate Trip Rope can be used so that the Load may be carried into the Mow at any Elevation desired without crawling entirely to Top of the Barn. It is adapted to be used in Connection with Slings or with one or two Ordinary Hay Forks; Rope Sheaves 4 inches in Diameter, with Long Hubs and Large Bearings.

No. 1173—MYERS' FOR DOUBLE STEEL OR WOOD TRACK, Complete with Trip and Knocker 2 feet Long, which forms a Bridge or Truss on the Track at the point on which the Carrier rests in Elevating the Load, Flanged Track Wheels, Diameter 3¼ inches; Tread ½ inch, Height over all 15 **inches; Length 21 inches; Weight each about 54 lbs.** ..... Each $12.00

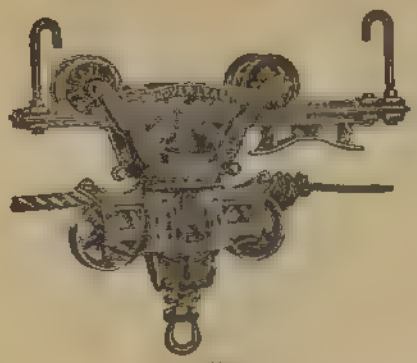
Packed Loose.

NOTE.—Material required to put up Myers' Right Angle Fork and Sling Pulley:

1 Carrier No. 1173.
Track, the Required length of barn.
1 Hanging Hook and Rafter Bracket for each Rafter.
5 Malleable Knot Passing Pulleys.
1 Fork.
2 Floor Hooks.
1 Rope Hitch.

(Rope required usually from 160 to 200 feet, depending upon length of Barn; ⅞ inch Rope is the size generally used to operate the Carrier, with a ⅝ inch Reverse Rope of the same length as the Track, Trip Rope should be ½ inch.)

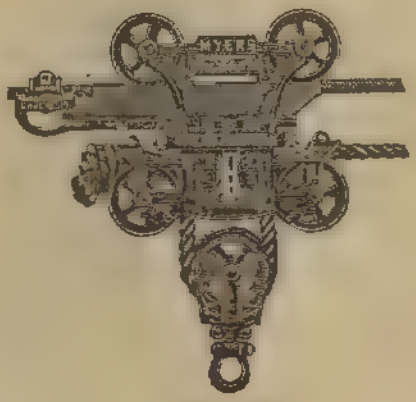
HAY CARRIERS.



No. 1031

View showing Bottom of Carrier

Lock on both sides of Fork Pulley



No. 1043.

MYERS'.

Swivel and Reversible Unloader Malleable Iron, Aluminum Bronzed Finish Red Striped; Frame is Single Beaded to Strengthen it ⅞ inch Turned Steel Axle; Wide Mouth receives the Fork Pulley from any direction Carrier can be Reversed by Drawing the Rope through from end to end or by Turning the Swivel; Rope Sheaves 4 inches in Diameter with Long Hubs and Large Bearings; Carry full 1 inch Rope, Patent Double Lock which engages the Fork Pulley on both sides preventing the load from being accidentally dropped

Each

No. 1031—MYERS' CLOVER LEAF, FOR DOUBLE STEEL TRACK Complete with Trip and Two End Stops, Flanged Track Wheels, Diameter 3¼ inches, Tread ½ inch, Height over all 18 inches, Length 17 inches; Weight each about 27 lbs. $7.00

No. 1043—MYERS' FOR CABLE OR ROD TRACK With Patented Swinging Knocker; Carrier and Knocker can be removed from the Cable without dismounting the Cable, Diameter of Track Sheaves 4 inches, for Cable or Rod ½ or ⅝ inches; Height over all 16½ inches Length 13¼ inches Weight each about 31 lbs 7.00

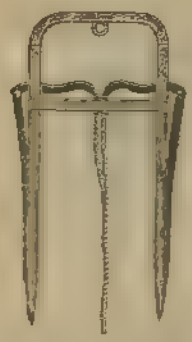
NOTE Fork Pulley on No 1043 is made with a Short Top and will swing backward or forward so as to relieve the strain of the swinging load from the Knocker The Knocker is arranged so that it Swings Loose on the Track and stands immediately under the Cable under any and all circumstances and is located at any desired point on the Cable by means of an Ordinary Cable Clamp, No. 431.

Packed Loose.

NOTE.—Material required to put up Myers' Hay Carrier No. 1043:

One Cable Unloader No. 1043.
One Hay Fork.
150 Feet ½ inch Galvanized Wire Strand, or ⅝ inch Hemp Center Galvanized Wire Rope.
Two Single Cable Clamps No. 431.
Two Double Cable Clamps No. 432.
Two ⅝x10 inch Carrier Bolts for securing Poles together.
130 Feet ⅝ inch Manila Rope.
Two Pulleys.
Four Poles 4x4x30 Feet Long.

HAY FORKS.



Double Harpoon Spear Point, Steel, Japanned; Head 17¼ inches Wide; Welded Ring 1⅝ inches in Diameter; Harpoon Points 3½ inches Long; Malleable Iron Trip Levers, 10¼ inches Long; Two Center Braces Riveted to Frame, 17¾ inches Wide.

HARRIS Double Harpoon Hay Forks.

Nos.	268	451
Height over all, inches	36½	42½
Width over all inches	21½	20
Weight each about, lbs.	17	19
Each	$1.60	2.00

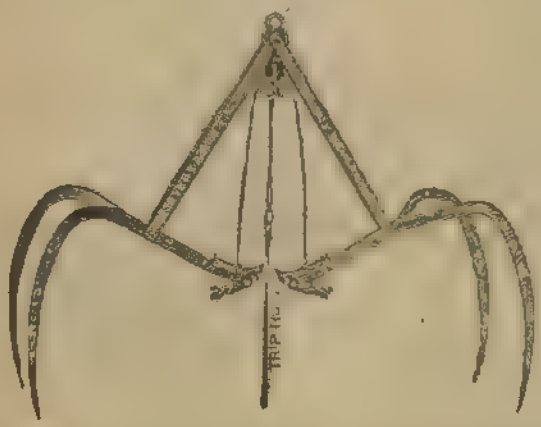
Large Western Alfalfa Double Harpoon Spear Point Forks, Steel, Japanned; Head 22¾ inches Wide; Welded Ring 1½ inches in Diameter; Harpoon Points 3½ inches Long; Malleable Iron Trip Levers 13¼ inches Long; Two Center Braces Riveted to Frame 23½ inches Wide.

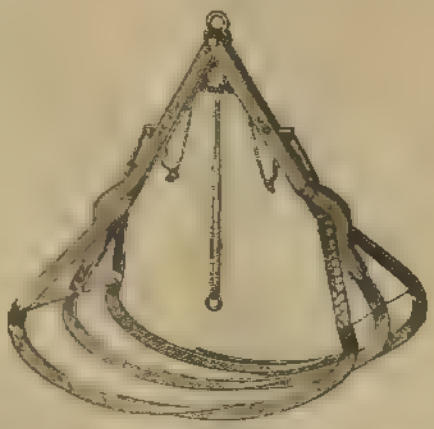
Each

No. 450—HARRIS Western Alfalfa Double Harpoon Hay Forks, Height over all 47 inches; Width over all 26 inches Weight each about 29 lbs $7.70

Each

No. 773—NELLIS Fork; Spring Steel Lock Lever; Single Harpoon Pattern; Painted Red; Polished Points; Sets with one Lever and Locks either Open or Closed. On account of Cross Bar being placed near the Top, it gathers the Grain or Hay from the End of the Point and not two inches from bottom as all Old Style Forks do; Length over all 36 inches; Weight each about 11 lbs..... $3.00





Automatic Grapple Returns to the load Closed or Open. Spring Steel Tines and Arms, Sharpened and Polished. Malleable Iron Locks. When the load is discharged, by means of the Trip Rope the Tines are allowed to come down. Before returning the Fork to the load, the operator, by pulling sharply on the Trip Rope, Closes the Fork and Locks it, and when returned to the load it is ready for use.

Each

No. 618—MYERS' Automatic Grapple Fork, without Spear Point; Four Tines; Length between Tines, Open, 68 inches; Height, Open, 23 inches; Width, Open, 67 inches; Height, Closed, 36 inches; Width, Closed, 30 inches. Weight each about 32 lbs..... $7.00

Each

No. 965—MYERS' Automatic Grapple Forks, without Spear Point; Six Tines; Length between Tines, Open, 68 inches; Height, Open, 23 inches; Width, Open, 67 inches; Height, Closed, 36 inches; Width, Closed, 30 inches; Weight each about 51 lbs..... $8.50

Packed Loose.

HAY CARRIER TRACK.

Per Foot

No. 518—MYERS' Single Steel Track; 2⅛ inches Wide on the Tread; In 6 and 12 foot Lengths, Complete with Splicing Clamps. The Sections of Track are joined together with a Malleable Iron Splicing Clamp with Four Bolts; Weight per foot about 1¾ lbs.... $0.20

Four Pieces in a Bundle.

Per Foot

No. 824—MYERS' Double Steel Track; 2½ inches Wide on the Tread; In 6 and 12 foot Lengths, Complete with Intermediate Bolts and Splicing Clamps; The Sections of Track are joined together by a Malleable Iron Splicing Clamp with Three Bolts; Weight per foot about 2 lbs..... $0.20

‡WIRE CABLE.

‡GALVANIZED STEEL WIRE CABLE

Per 100 Feet

‡No. 200—Galvanized Steel Wire Cable, ⅛ inch in Diameter; for Myer's Hay Carrier No. 1043, composed of Seven No. 6 Wires; Breaking Strain about 8500 lbs.; Weight per 100 feet about 52 lbs.. $4.50

In Coils any Length Desired.

‡GALVANIZED IRON WIRE ROPE. *Per 100 Feet*

‡No. 300—Galvanized Iron Wire Rope, ⅝ inch in Diameter; for Myers' Cable or Rod Track Carrier; Five Strands each, composed of Seven No. 16 Steel Wires, laid around a Hemp Center; Breaking Strain 11,800 lbs.; Weight per 100 feet about 65 lbs. $8.00

In Coils any Length Desired.

TRIP.

Per Dozen

No. 109—MYERS' TRIP, for No. 518 Single Steel Track; Malleable Iron; Aluminum Bronze Finish; fastened by Three Bolts; Extreme Length 7½ inches; Height 3¼ inches; Weight per dozen about 24 lbs.. ..... $6.00

Packed Loose

CABLE CLAMPS.

No. 431.

No. 432.

MYERS' Cable Clamps; for use with No. 200 Galvanized Cable, Malleable Iron with Bolts.

Nos.	431	432
Length, inches	1⅛	3
Width, inches	1½	1⅛
Weight per dozen about, lbs.	9	15½
Per dozen	$3.00	4.00

‡Goods marked thus (‡) are not carried in stock and can only be furnished by shipment direct from Factory.

SLINGS.

Center Trip Adjustable.

½ inch Manila Ropes, Loose Twist (Will not Gnarl or Kink), Attached to Wood Cross Bars by a Hook Bolt, which passes around the Rope and through the Bar, can be shifted to any point desired; the Self-Conforming Malleable Iron Lock can not be set wrong and trips easily, Adjustable "Take Up" at each end which enables the user to adjust the Length of the Sling from 17 to 20 feet as desired. Each

No. 620—MYERS' CENTER TRIP ADJUSTABLE Sling; With Four 4-foot Ash Wood Cross Bars 1½ inches Thick, 1¾ inches Wide; Length over all 20 Feet; Width over all 4 Feet; Weight each about 19 lbs.... $3.20

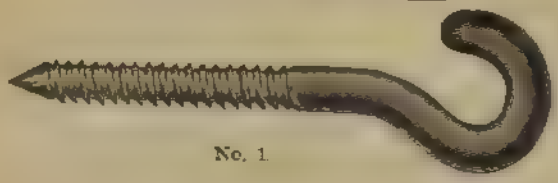
One in a Bundle.

½ inch Manila Ropes, Loose Twist (Will not Gnarl or Kink), Attached to Wood Cross Bars by a Hook Bolt which passes around the Rope and through the Bar, can be shifted to any point desired the Cross Bars extend beyond the Side Ropes 18 inches on either side to which an Additional Rope and also a Cross Rope is attached to each of the Main Ropes, the Sling thus forms a Net, designed to carry the fine stuff; the Self-Conforming Malleable Iron Lock can not be set wrong and trips easily; Adjustable "Take-Up" at each end (Marked AA) which enables the user to adjust the Length of the Sling from 12½ to 21½ feet as desired. Each

No. 621—MYERS' UTAH, CENTER, TRIP ADJUSTABLE Sling; With Four 6-foot Ash-wood Cross Bars 1⅜ inches Thick, 1¾ inches Wide; Length over all 21½ feet; Width over all 6 feet; Weight each about 25 lbs..... $5.00

One in a Bundle.

FLOOR HOOKS.



No. 1.

Per Dozen

No. 1—Wrought Steel Floor Hooks for use with Hay Fork Pulleys; ⅝ INCHES IN DIAMETER; Length over all 7½ inches; Length of Screw 3¼ inches; Opening of Hook Width ¾ inch; Weight per dozen about 7½ lbs..... $2.00

No. 2—Wrought Steel Floor Hooks for use with Hay Fork Pulleys; ¾ INCH IN DIAMETER; Length over all 8 inches; Length of Screw 3¼ inches; Opening of Hook Width 1 inch; Weight per dozen about 12 lbs..... 3.00

PULLEYS.

Reversible Sling Pulley

Malleable Iron Flanged Edge Concaved Frame, with Hook Riveted together; Malleable Iron Hook for Sling, Reversible Tripping Device Extending from either side, with Two 1x2 inch Rope Sheaves; Aluminum Bronzed Finish. Each

No. 1052—MYERS', Reversible Sling Pulley Frame 14½ inches Long, 8½ inches Wide; Tripping Device 8 inches Long, 2¾ inches Wide, Sling Hook 4 inches Long Adapted for use on any Carrier for Unloading Corn, Fodder, Sheaf Wheat, Hay etc., and especially adapted for the use of Adjustable Slings Nos. 620 and 621 (see above). Can be used either side up; Length over all 17½ inches; Weight each about 11 lbs $3.50

TRACK HANGING HOOKS.

No. 49

No. 302. No. 287. No. 303.

Per Dozen

No. 49—MYERS', Malleable Iron Track Hanging Hook FOR SINGLE STEEL TRACK; Length over all 4½ inches; Width 1½ inches, Fastened by One Bolt to Track, Placing One Clamp Piece at each Side; can be put at any point along the Track; Weight per dozen about 6 lbs. $1.40

No. 302—MYERS', ½ inch Round Wrought Iron Track Hanging Hook; Hook on one end, other end Threaded; Complete with Nut and 2 Clamp Plates FOR No. 824 DOUBLE STEEL TRACK; Length over all 6¾ inches; Weight per dozen about 9 lbs..... 1.40

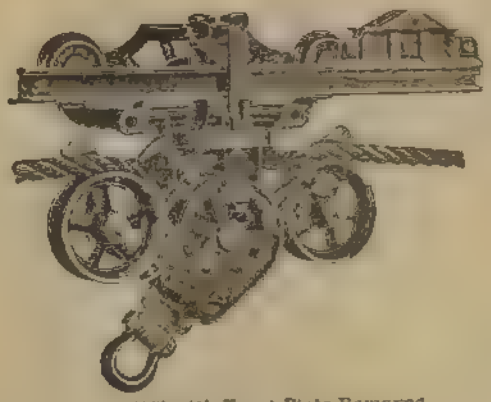
Per Dozen

No. 287—MYERS', ½ inch Round Wrought Iron Track Hanging Hook; Hook on one end, other end Threaded; COMPLETE WITH NUT FOR WOOD TRACK; Length over all 14 inches; Weight per dozen about 12 lbs..... $1.20

No. 303—MYERS', Screw Eye Wrought Iron Track Hanging Hook, Upper Threaded End ½ inch Diameter, 5 inches Long; Lower End ½ inch Diameter, 10½ inches Long, Threaded, Complete with Nut; FOR WOOD TRACK; Length over all 14½ inches; Weight per dozen about 13 lbs..... 2.00

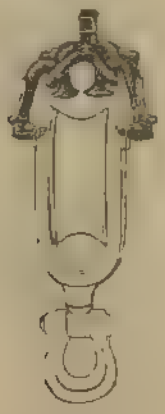
Packed Loose.

HAY CARRIERS.

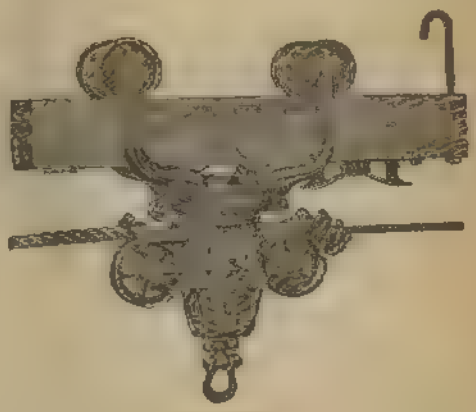


No. 1040 with Front Plate Removed

View showing Bottom of Carrier



Lock on both sides of Fork Pulley



No. 1041

MYER'S HAYMAKER.

Swivel and Reversible Unloader, Malleable Iron, Aluminum Bronzed Finish, Red Striped. Frame is Single Beaded to Strengthen it, [illegible] Turned Steel Axles, [illegible] Fork Pulley from any direction. Lock engages Fork Pulley on Both Sides, thus preventing the [illegible] accidentally dropped. Carrier can be reversed either by Drawing the Rope through from end to [illegible] Turning the Swivel. Rope Sheaves 4 inches in Diameter, with Long Hubs and Large Bearings; Carry full 1 inch Rope.

	Each
No. 1040—MYERS', FOR SINGLE STEEL TRACK. Complete with Trip and Two Adjustable End Stops, which may be placed above and at any position [illegible] Flanged Track Wheels, Diameter 2¾ inches; Tread ⅛ inch, Height over all 16 inches, Length 14 inches. Weight each about 27 lbs.	$7.00
No. 1041—MYERS', FOR WOOD TRACK. Wheels [illegible] Wood Track. Complete with Trip and Two End Stops, Flanged Track Wheels, Diameter 3 inches; Tread 1 inch, Height over all 22 inches; Length 16 inches. Weight each about 32 lbs.	7.00

Packed Loose.

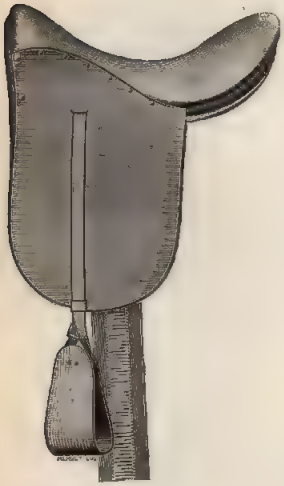
NOTE.—Material Required to put up Myers' Steel Track Hay Carriers Nos. [illegible]

One Reversible Carrier.
Track, the required length for barn.
One Hanging Hook and Rafter Bracket for each Rafter.
Five Malleable Knot Passing Pulleys.
One Fork.
Six Floor Hooks.
One Rope Hitch.

(Rope required usually from 125 to 160 feet, depending upon length of barn; ¾ and ⅞ inch Rope are the sizes generally used to operate the Carrier, with a ⅝ inch Reverse Rope of the same length as the Track).

SADDLES.

SOMERSET.



No. 302.

NO. 302.

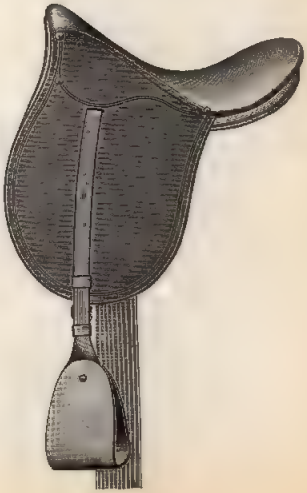
Tree—15¼-inch, Somerset
Skirts—Hogskin impression
Seating—Kip.
Pad—Enamel cloth.
Stirrup Leathers—⅞-inch.
Girth—Fancy cotton, buckle.
Stirrups—2½-inch, wood.

	Each
Black, Fair or Orange Leather	$8.00

NO. 309.

Tree—15-inch, Somerset.
Skirts—Hogskin impression
Seating—Plain kip.
Pad—Enamel cloth.
Stirrup Leathers—⅞-inch.
Girth—Fancy cotton, buckle.
Stirrups—4-inch, wood.

	Each
Fair or Orange Leather	$6.00



No. 309.

TEAM WHIPS.

Per Dozen

No. 242—5 FOOT OVER ALL; Plaited Rawhide all through; With 6 inch Revolving Varnished Hardwood Handle, and 1 foot Buckskin Lash, Plaited in.. . ..... $ 9.00

No. 248—6 FOOT OVER ALL; Otherwise same as No. 242 ..... 10.00

Weight per Dozen about 9 lbs.

MULE SKINNER

Per Dozen

No. 298—5½ FOOT; 2⅔ foot Buckskin, Stitched Brown Oiled Leather Cover, 18 oz. Shot Loaded Butt; With Leather Button; 3 foot Plaited Buckskin Point, and 1 foot Lash, Plaited in; 6⅔ foot over all..$25.00

No. 299—6½ FOOT; Otherwise same as No. 298; 7½ foot over all 28.00

Weight per Dozen about 13 lbs.

One-quarter Dozen in a Package.

DROVER WHIPS.

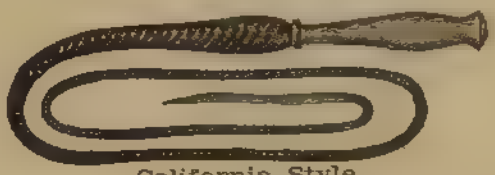
Per Dozen

No. 630—10 FOOT; Jacksonville, California Style; Plaited Tan Leather; With Eight Plait Latigo Buckskin Points, and Buckskin Lash, Plaited in; Solid Steel Revolving Handle Stitched Fair Leather Cover; With Two Buckskin Buttons $30.00

No. 632—10 FOOT; SHOT LOADED HANDLE; Otherwise same as No. 630 . . . . . 32.00

Weight per Dozen about 18 lbs.

One-quarter Dozen in a Bundle.



California Style.

Per Dozen

No. 210—8 FOOT OVER ALL; California Style; Plaited Special Whip Leather; With Eight Plait Oiled White Horse Hide Point, and Lash, Plaited in; 7 inch Revolving Varnished Hardwood Handle; Weight per dozen about 11 lbs..$18.00

No. 211—9 FOOT OVER ALL; Otherwise same as No. 210; Weight per dozen about 12 lbs.. 19.00

No. 212—10 FOOT OVER ALL; Otherwise same No. 210; Weight per dozen about 13½ lbs. 20.50

No. 214—12 FOOT OVER ALL; Otherwise same as No. 210; Weight per dozen about 15 lbs. 24.50

Jacksonville, California Style

Per Dozen

No. 600—10 FOOT; Jacksonville, California Style, Plaited Special Whip Leather; With Eight Plait Oiled White Horse Hide Points and Lash, Plaited in; 7 inch Revolving Varnished Hardwood Handle, with Buckskin Button Keeper; Weight per dozen about 15 lbs. $27.00

No. 612—12 FOOT; Otherwise same as No. 600, Weight per dozen about 17 lbs. 30.00

No. 624—14 FOOT; Otherwise same as No. 600; Weight per dozen about 18 lbs..... . 35.00

Packed Loose.

WHIP SNAPS.

	Per Gross
No. C—7 inch Cotton Plaited Loop Snap	$2.00
No. H—7 inch Half Silk and Half Cotton Plaited Loop Snap	5.00
No. A—7 inch All Silk Plaited Loop Snap	7.00

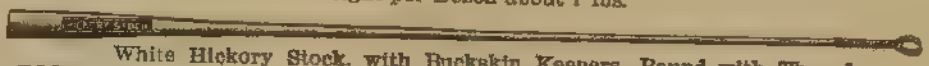
Weight per Gross about ¼ lb.
One Gross in a Package.

WHIP STOCKS.

Rawhide Stage Stocks; Black Linen Thread Cover; With 7 Nickel Plated Bands; Four Stitched Black Head Buttons; Japanned Cap, and Buckskin Keeper, Bound with Linen Thread.

	Per Dozen
No. 587—4 FOOT	$16.00
No. 588—4½ FOOT	17.00
No. 589—5 FOOT	19.00

Weight per Dozen about 7 lbs.

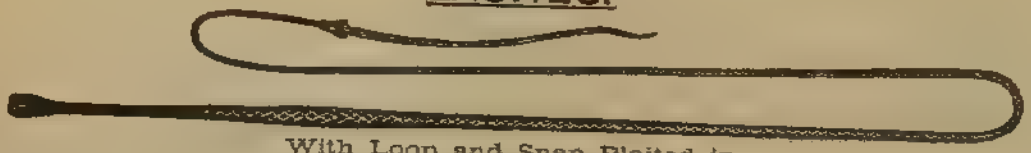


White Hickory Stock, with Buckskin Keepers, Bound with Thread.

	Per Dozen
No. 592 —3½ FOOT	$2.20
No. 592½—4 FOOT	2.60
No. 592¾—4½ FOOT	2.80
No. 593 —5 FOOT	3.00

Weight per Dozen about 6 lbs.
One-quarter Dozen in a Package.

LASHES.

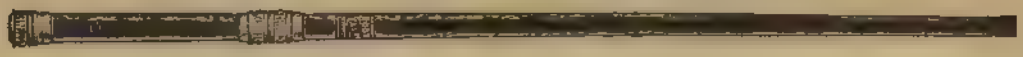


With Loop and Snap Plaited in.

	Per Dozen
No. 115— 4 FOOT, Four Plait; White Horse Hide Stage Lashes	$ 2.50
No. 116— 5 FOOT, Four Plait; White Horse Hide Stage Lashes	3.00
No. 117— 6 FOOT, Four Plait; White Horse Hide Stage Lashes	4 00
No. 118— 8 FOOT, Four Plait; White Horse Hide Stage Lashes	8.00
No. 119—10 FOOT, Four Plait; White Horse Hide Stage Lashes	10 00
No. 120— 5 FOOT, Four Plait; Raw Hide Stage Lashes	4.00
No. 121— 6 FOOT, Four Plait; Raw Hide Stage Lashes	5.00
No. 122— 8 FOOT, Four Plait; Raw Hide Stage Lashes	8.50
No. 123—10 FOOT, Four Plait; Raw Hide Stage Lashes	10.00
No. 125— 6 FOOT, Four Plait; Brown Horse Hide Ox Lashes	5.00
No. 126— 8 FOOT, Four Plait; Brown Horse Hide Ox Lashes	8.50
No. 130— 6 FOOT, Four Plait; Raw Hide Ox Lashes	5.50
No. 131— 8 FOOT, Four Plait; Raw Hide Ox Lashes	11.00
No. 134— 6 FOOT, Six Plait; Genuine California Style Buckskin Stage Lashes	12.00
No. 135— 8 FOOT, Six Plait, Genuine California Style Buckskin Stage Lashes	20.00
No. 136—10 FOOT, Eight Plait; Genuine California Style Buckskin Stage Lashes	30.00
No. 137—12 FOOT, Eight Plait; Genuine California Style Buckskin Stage Lashes	36.00
No. 138—14 FOOT, Eight Plait; Genuine California Style Buckskin Stage Lashes	42 00

Weight per Dozen, Nos. 115 to 123, about 4½ lbs., Weight per Dozen, Nos. 125 to 138 about 6 lbs.
Packed Loose.

STRAIGHT BUGGY WHIPS.



Per Dozen

No. 3—6 FOOT, Straight Java Linen Lined; 1⅛ inch Nickel Plated Chased Ferrule, and ⅝ inch Cap or Head; Loop Snap; Assorted Colors. Black, Wine and Tan; Star Finish $3.50

Per Dozen

No. 22½—6 FOOT, Straight Java; Linen Lined, Plaited through; 1¾ inch Chased Nickel Plated Head; 1½ inch Chased Nickel Plated Ferrule; English Snap; Assorted Colors: Black, Wine and Imitation Gut; Star Finish $3.40

Per Dozen

No. 51—MONARCH; 6 FOOT, Straight Java; Linen Lined, Plaited through; Two ¾ inch White Patent Imitation Buckskin Buttons; Solid Rubber Cap Loop Snap, Assorted Colors: Black, Wine and Imitation Gut; Star Finish $3.40

Per Dozen

No. 1½—6 FOOT, Straight Java; Warranted Duck Lined, Plaited through: Oil Finished; 1 inch Nickel Plated Cap or Head and Fancy Ferrule; Loop Snap; Assorted Colors: Black and Wine; Imitation Star Finish $3.10

Per Dozen

No. 60—GATLIN; 6 FOOT, Straight Java; Waterproof Finish; Plaited through; 1 inch Nickel Plated Cap or Head; Loop Snap; Assorted Colors: Dark Red, Black and Dark Yellow $3.00

Per Dozen

No. 2—5½ FOOT, Straight Rattan Waterproof Finish, Round Head; Loop Snap; Assorted Colors: Dark Red, Black and Yellow $2.00

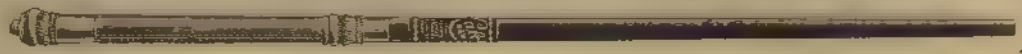
No. 52—6 FOOT, Straight Java; Linen Lined; Waterproof Finish: Round End; Loop Snap; Assorted Colors: Dark Red, Black and Yellow 2.20

One-quarter Dozen in a Package, Weight per Dozen about 6 lbs.

ROAD CART WHIPS.

Per Dozen

No. 16—5 FOOT, Straight Java; German Braid Covered; 8½ inch Black Painted Handle; 1½ inch Chased Nickel Ferrule; 1 inch Head to Match; English Snap; Imitation Gut; Star Finish..... $6.00



Per Dozen

No. 18—5 FOOT, Straight Java; Duck Lined, Plaited through, 8 inch Stitched Fair Leather Handle, with Two Four Stitched Russet Creased Buttons; Loaded Butt; Rubber Cushion Cap; English Snap; All Black; Star Finish $8.00

TRACK OR SULKY WHIPS.

Per Dozen

No. 10—4½ FOOT, STRAIGHT JAVA; Linen and Metallic Lined; Loaded Butt; 1 inch Chased Nickel Ferrule, and 1 inch Head to Match; English Snap; All Black; Star Finish $5.00

One-quarter Dozen in a Package; Weight per Dozen about 4½ lbs.

DROP TOP WHIPS.

Per Dozen

No. 111—4 FOOT Rawhide Stock, Full Length 7 feet, Russet Horse Hide Braided Cover, Waterproof Lined under Cover; Calfskin Plaited Top and Drop, 8 inch 6 Plait Brown and Black Leather Handle, Two Six Stitched Round Leather Buttons; Japanned Cap; Braided Snap $24.00

Per Dozen

No. 108—4 FOOT Stock, Java, Full Length 7 feet; 4 Plait Linen Braided Cover, 6 Plait Calfskin Top and Drop, Loaded Butt Two 2¼ inch Chased Ferrules, Four Stitched Head Buttons; Japanned Cap; Braided Snap; Black Stock; White Drop..... $10.00

Per Dozen

No. 23—5½ FOOT Imitation English Holly Stock, Cream Color; Full Length 8 feet; White Thread Braided Top and Drop, 8 inch Stitched Fair Leather Covered Handles, Plain Nickel Plated Head and Ferrule. $8.00

Weight per Dozen about 5 lbs.

Per Dozen

No. 21—5 FOOT Stock Java; Full Length 7 feet; Cloth Covered White Thread Plaited Drop; 1¾ inch Nickel Head and 1½ inch Ferrule; Philadelphia Snap $6.00

Per Dozen

No. 107 3½ FOOT Stock Java, Full Length 6 feet; Brown Plaited Cover, 8 inch Black Painted Handle; Two Four Stitched Buttons; Japanned Cap; Loop Snap $4.30

Per Dozen

No. 24—JUMBO; 5 FOOT Java; Cloth, Plaited through; Black Enamel Cap; 2 foot Drop Loop Snap; Full Length 7 feet; Imitation Gut; Oil Finish..... $3.30

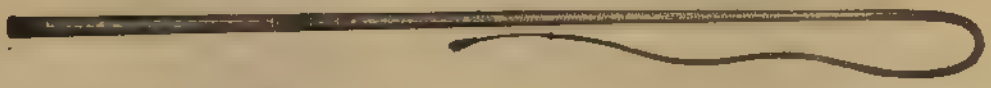
Per Dozen

No. 25—CAB WHIPS; 2¾ FOOT Stock Java; Full Length 5¼ feet; Cloth Lined, Oil Finish; Imitation Gut; Loop Snap $2.20

No. 26—EXPRESS WHIPS; 3½ FOOT Stock Java; Full Length 5½ feet, Linen Braided Cover; Black and Yellow Mixed; ⅝ inch Nickel Head; 1 inch Nickel Mounting; Loop Snap..... 4.00

Weight per Dozen about 4½ lbs.
One-quarter Dozen in a Package.

HARVESTER OR BINDER WHIPS.



MADE IN ONE PIECE; NO CONNECTIONS.

	Per Dozen
No. 750½—12 FOOT OVER ALL; Painted Assorted Colors; 5 Foot Wood Stock, with 4 foot White Thread Top, and 3 foot Plaited Drop; Loop Snap	$5.50
No. 673½—12 FOOT OVER ALL, 9 foot Hickory Stock, Natural Finish, Black Thread Covered, Full Length; 3 foot Plaited Drop, 1 inch Chased Nickel Head, Loop Snap	7.00
No. 673—10½ FOOT OVER ALL; 8 foot Hickory Stock; Black Thread Covered Full Length; 2½ foot Plaited Drop; 1 inch Nickel Head; Loop Snap	6.40

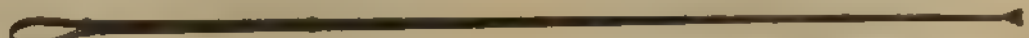
Weight per Dozen about 8 lbs.

No. 753—12 FEET LONG OVER ALL; 9 Foot Bamboo Stock, One Piece; 3 Foot White Thread Drop Top	$4.50
No. 754—15 FEET LONG OVER ALL, 11½ Foot Bamboo Stock, One Piece; 3½ Foot White Thread Drop Top	5.00
No. 650—10½ FEET LONG OVER ALL 7½ Foot Black Hickory Stock One Piece; 3 Foot White Thread Drop Top	6.00
No. 752—14 FEET LONG OVER ALL, 10 Foot Black Hickory Stock, One Piece; 4 Foot White Thread Drop Top	7.00
No. 674—14 FEET LONG OVER ALL, 10 Foot Black Hickory, One inch Plain Head, Stock One Piece, 4 Foot White Thread Drop Top	8.00

Weight per Dozen about 12 lbs.

RIDING WHIPS.

	Per Dozen
No. 104—3 FOOT; Rawhide throughout; Linen Plaited Cover; Four Stitched Head Button, with White Plaited Wrist Band; English Snap; Black, Russet and Imitation Gut	$6.50



	Per Dozen
No. 842—3 FOOT; Solid Twist Rawhide throughout, Lined Plaited Handle with Two Three Stitched Buttons; White Plaited Wrist Band; Braided Snap; Painted, Assorted Colors	$4.30

	Per Dozen
No. 860—3 FOOT; Stocked Rawhide Center Core; Butt to Tip, Double Linen Lined and Plaited through 8 inch Stitched Russet Leather Handle Nickel Plated Cap and Ferrule; Assorted Colors, Yellow, Red and Black; Philadelphia Snap; Bright Finish	$3.50

	Per Dozen
No. 839—3 FOOT Solid Twist Rawhide throughout; Painted, Assorted Colors	$2.75

	Per Dozen
No. 850—3 FOOT, Good Quality Java Linen Lined and Plaited through Nickel Plated Cap and Ferrule, Assorted Colors, Yellow, Red and Black; Loop Snap; Bright Finish	$2.00

Weight per Dozen about 1 lb.

One-quarter Dozen in a Package.

QUIRTS.

No. 2—TEXAS, 3 FOOT LONG OVER ALL. Buckskin Stitched; Oiled Leather Covered; Shot Loaded Handle under Cover and Leather Stuffed Body; Two Buckskin Buttons; Two 18 inch Brown Leather Points or Lashes Wrist Band Weight per dozen about 10 lbs... ..... Per Dozen $10.70

No. 3—3 FOOT LONG OVER ALL. Brown Leather Diamond Shape Plaited through, 6 inch Covered Iron Handle 3 Buckskin Buttons; Two 18 inch Brown Leather Points, or Lashes; Buckskin Wrist Band; Weight per dozen about 8 lbs. ..... Per Dozen $9.70

No. 1 3 FOOT LONG OVER ALL, 6 inch, Stitched, Russet Leather Covered Iron Handle; Two Buckskin Buttons; 12 inch Russet Leather Plaited Body; Two 18 inch Brown Leather Points or Lashes, **Buckskin Wrist Band; Weight per dozen about 8 lbs.** ..... Per Dozen $8.70

No. 4—3 FOOT LONG OVER ALL Rawhide Covered Iron Handle; Russet Leather Braided Body, with 2 Braided Leather Buttons, Leather Wrist Band, Weight per dozen about 4 lbs..... ..... Per Dozen $7.00

One Dozen in a Package.

TEAM WHIPS.

No. 184—3½ FOOT Buckskin, Stitched; Brown Oiled Leather Cover, Filled with Linen Bound Leather Strips; Iron Spike under Cover at Handle, Two Leather Buttons Wrist Band Sewed in 12 inch Buckskin Braided Point, with Buckskin Lash, 5½ foot over all. Weight per dozen about 9 lbs..... Per Dozen $9.30

No. 185—4 FOOT; Otherwise same as No. 184; 6 foot over all. Weight per dozen about 10 lbs..... 11.00

No. 186—4½ FOOT. Otherwise same as No 184; 6½ foot over all Weight per dozen about 15 lbs..... 12.00

No. 187 5 FOOT; Otherwise same as No. 184; 7 foot over all. Weight per dozen about 16 lbs. 13.50

No. 188—5½ FOOT Otherwise same as No 184; 7½ foot over all; Weight per dozen about 17 lbs..... 14.50

No. 189—6 FOOT; Otherwise same as No. 184; 8 foot over all, Weight per dozen about 18 lbs. 16.00

No. 195—5 FOOT OVER ALL; 2 foot Buckskin, Stitched; Oiled Brown Leather Cover Filled with Linen Bound Leather Strips Iron Spike under Cover at Handle One Leather Head Button, and Wrist Band Sewed in; 2¼ foot Russet Horse Hide, Braided Points, with 9 inch Buckskin Lash..... Per Dozen $9.00

No. 196—6 FOOT OVER ALL; Otherwise same as No 195 ..... 10.50

Weight per Dozen about 10 lbs.

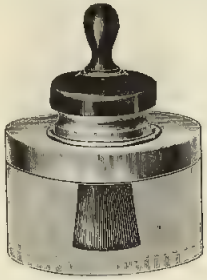
One-quarter Dozen in a Package.

MUCILAGE BOTTLES Continued

No 34

THE DANDY

No.		Per doz.
34	Glass, with spring wipe-off, which can be adjusted to any height, 5 inches high	$4 00



THE IDEAL

Prevents all evaporation, contents never dry up or thicken, brush never bakes fast to the bottle

No.		Per doz
33	Glass, finely nickel-plated top, with brush and black removable cap, capacity 2 ounces	$4 00

No 7581

No.		Per doz.
7581	5 oz., fine flint glass, wipe-off bar, with brush, height 5 inches, diameter of base 2½ inches	$2 80

INKSTANDS

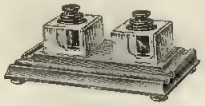
THE DAVIS AUTOMATIC

This inkstand always inks the pen to the proper height, bringing the ink fresh at each dipping from the center of the fluid thus keeping it pure until used. All hard rubber and glass. There are no soft rubber discs or metal springs to get out of order

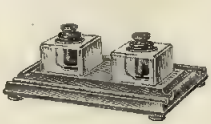
Nos. 201B and 201R

Nos. 200B and 200R.

No.		Per doz.
201B	Black funnel, diameter of base 2¾ inches height 3 inches	$18 00
201R	Red funnel, same as No 201B	18 00
200B	Black funnel, diameter 3 inches	27 00
200R	Red funnel, diameter 3 inches	27 00

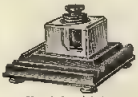


No.		Each
316	Oak base, fitted with two cut glass inkstands No. 293, one black and one red funnel, size of base 8x11	$9 00
320	Same as No. 316, mahogany base	9 76



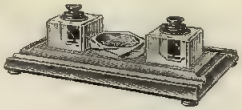
No.		Each
317	Same as No. 316, double base for double desk, size of base 8x11	$9 76
321	Same as No. 320, double base for double desk, size of base 8x11	10 50

No 305B



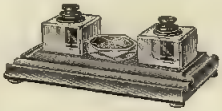
Nos. 310 and 314

No.		Per doz.
305B	For black ink, with pen rest, diameter 3 inches	$27 00
310	Oak base, fitted with one cut glass inkstand No. 293, black funnel, size of base 6¼x6½	58 50
		Each
314	Same as No. 310, mahogany base	5 30



No.		Each
328	Oak base, fitted with two cut glass inkstands No. 293, one black and one red funnel, and cut glass sponge cup, size of base 7x12½	$10 50
332	Same as No. 328 mahogany base	11 26

No.		Per doz
293B	For black ink, cut glass, 3 inches square	$36 00
293R	Cut glass red funnel, size 3x3	36 00



No.		Each
329	Same as No 328, double base for double desk, size of base 9½x12½	$11 26

FITZ AUTOMATIC INKSTANDS

Hard rubber funnel ink container with screw cup and float, set in glass ink well, automatic in action, adjusting itself without regard to change of temperature. The ink is raised to pen by pressing the dip funnel down

Nos. 3151 and 3152

Nos. 3153 and 3154

No.		Per doz.
3151	2⅝ inch, round	$20 00
3152	Same as 3151, for red ink	20 00
3153	2½ inch, square cut glass	24 00
3154	Same as 3153, for red ink	24 00

Nos. 3155 and 3156

Nos. 3157 and 3158

No.		Per doz.
3155	Round 3¼ inches in diameter	$28 00
3156	Same as 3155, for red ink	28 00
3157	3 inch square cut glass	32 00
3158	Same as 3157, for red ink	32 00

No 3090

No 3091

No.		Per doz
3090	For black ink, crystal glass and hard rubber, diameter 2½ inches	$3 70
3091	For black ink, crystal glass and hard rubber, diameter 2¾ inches	4 00

INKSTANDS—Continued

No 3045

No.		Per doz.
3045	The Star, bankers' fluted ink-well, 2½ inches square rubberoid funnel and top	$4 00

No.		Per doz.
3055	For black ink, heavy pressed glass, 2½ inches square, ½ dozen in package	$4 00

NEW IMPROVED SENGBUSCH, SELF-CLOSING

No 3099

No.		Per doz.
3099	Heavy pressed glass hard rubber fittings, diameter 3 inches, height 2¾ inches. A new improvement has been added, making this article absolutely reliable at all times; it is air tight and keeps ink fresh until all is used.	$25 50

No. 3142

No 3113

No.		Per doz.
3142	Round, diameter 3 inches	$25 50
3143	Square, size 3x3 inches	29 00

THE NEW GARDNER

Nos. 3080 to 3082

Dust proof, non-evaporating, supplies just enough ink, keeps ink always fresh, hard rubber front.

Heavy Pressed Glass

No.		Per doz.
3080	For black ink, size 3x3x3	$12 00
3081	" red " " 3x3x3	12 00
3087	" black " 2½x2½x2½	10 40

No.		Per doz.
2921	For black ink, size 3x3x3	$13 60

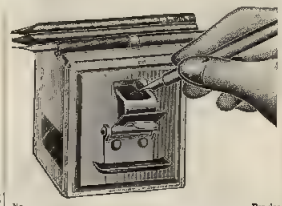
THE IMPROVED GARDNER

Nos. 3092 and 3093

No 3094

Heavy Pressed Glass

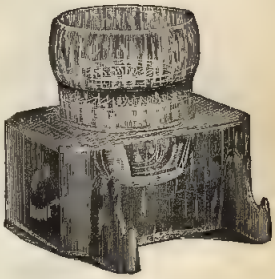
No.		Per doz.
3092	For black ink 2¾ inch cube	$13 60
3093	" red " 2¾ " "	13 60
3094	" black " 2¾ " "	16 00



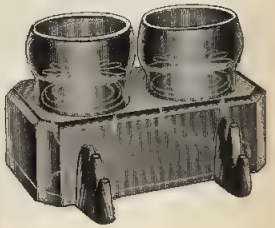
No.		Per doz.
3169	Made of glass, has nickel-plated dip cup which can be closed when not in use, thereby shutting out dust and preventing evaporation, has pin cup and pen rack inserted on top of stand	$24 00

No.		Per doz.
60	Bankers' loose cap, 2¾ inches square	$1 38
110	2 " " "	1 20
111	2½ " " "	2 06

No.		Per doz.
440	Pressed glass, size 3x6	$5 50



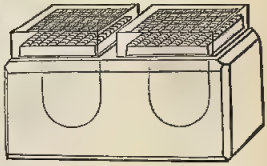
No.		Per doz.
F	Practical bankers', pressed glass, size 4x3	$4 40



No.		Per doz.
L	Practical bankers', pressed glass size 5½x3	$11 00

BANKERS' LOOSE CAPS

No.		Per doz.
G	Bankers' pressed glass 2½ inches square	$2 20



Nos. 1000 to 1010

No.		Per doz.
1000	Cut glass, 1¼ inches square	$4 14
1001	" " 1¾ " "	4 40
1002	" " 2 " "	4 96
1003	" " 2⅛ " "	6 26
1004	" " 2½ " "	7 46
1006	" " 3 " "	13 20
1008	" " 3½ " "	22 00
1009	" " 4 " "	39 60
1010	" double size 2x4	14 30

INKSTANDS—Continued

PRACTICAL, OR HOTEL

No. 2008

SAFETY
With cork in bottom

Nos 971 to 975

No.		Per doz
2008	Glass, 2½ inches in diameter	$1 54
971	Small, round, 2½x2½	2 42
972	Medium round, 2¾x3¾	3 60
973	Same as No 9 to, 3½x3½	4 40
974	Large round, diameter 4½ inches	5 18
975	Medium, square base, 2¾x2½	3 30

No 601

No 603

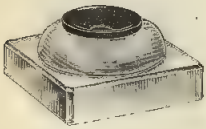
No.		Per doz
601	Made of glass, has patented rubber stop on bottom, with a patented double clamp making it impossible for the cork to fall out, easy cleaned, size 2½ inches in diameter, 2 inches high	$2 30
603	Same as 601, size 3 inches in diameter, 2 inches high	3 30

No 3137

Nos 3144, red 3145

No.		Per doz.
3137	Round, pressed glass with removable imitation rubber funnel, diameter 3 inches	$4 00
3144	Glass, with rubberoid removable funnel, diameter 2¾ inches	3 20
3145	Same as No. 3144, with red funnel for red ink	3 20

"Capitol"

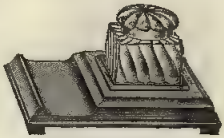


No.		Per doz
3101	Pressed glass base low shape, brass rubber funnel size 3x3½	$8 00
3102	Same as No. 3101, red funnel for red ink	8 00

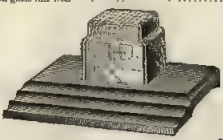
Nos 3146 and 3147

No.		Per doz.
308-2	Stoppered glass, for carmine ink Diameter 2 inches	$3 04
3146	Glass, with pen rests rubbered top and funnel, size 3½x3½	6 00
3147	Same as No. 3146, with red funnel for red ink	6 00
4010	Same as No. 4015, with sponge cup in place of red ink well	17 00

LIBRARY

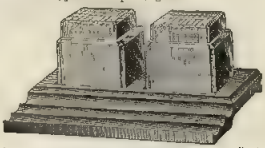


No.		Per doz.
3085	Composition base, imitation hard rubber, black or cherry color, size 5¾x4¾, fitted with one 2 inch fluted pressed glass ink-well	$6 60

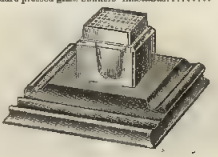


No.		Per doz
3996	Varnished oak base, size 6x6½, fitted with single 2½ inch square pressed glass bankers' inkstand	$8 00

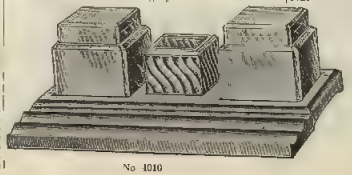
No.		Per doz.
3086	Base same as No 3085, size 8½x6 fitted with two 2 inch and one 1½ inch flutes, pressed glass ink-wells	12 00



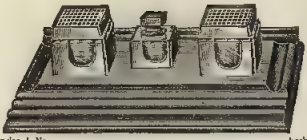
No.		Per doz.
4000	Varnished oak base size 6x7½, fitted with two 2½ inch square pressed glass bankers' inkstands	14 00



No.		Each
3105	Oak base fitted with one 2½ inch cut-glass inkstand, size of base 6½x6½	$2 16
3106	Same as No 3105, mahogany finished base	2 28
3107	Oak base, fitted with one 2¾ inch cut-glass inkstand, size of base 7½x7½	3 36
3108	Same as No 3107, mahogany finished base	3 76



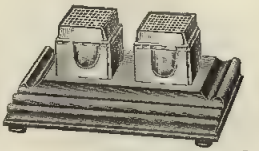
No 1010



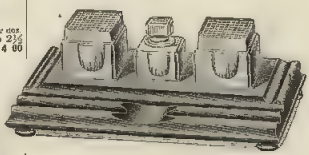
No.		Each
3121	Double base, oak, for double desk fitted with two 2¾ inch cut-glass inkstands with extra well for red ink, size of base 8x5x11	$4 00
3122	Same as No 3121, mahogany finished base	4 14

With sponge cup in place of extra red ink-well

No.		Each
3123	Same as No. 3121	3 76
3124	Same as No 3122	4 14



No.		Each
3109	Oak base, fitted with two 2¾ inch cut-glass inkstands, size of base 5½x8½	$2 40
3110	Same as No 3109, mahogany finished base	2 70
3111	Oak base, fitted with two 2¾ inch cut glass inkstands, size of base 6x11	3 60
3112	Same as No. 3111, mahogany finished base	3 76



No.		Each
3113	Oak base fitted with two 2½ inch cut-glass inkstands, with extra well for red ink, size of base 6x11	$3 38
3114	Same as No 3113, mahogany finished base	3 76
3115	Oak base fitted with two 2¾ inch cut-glass inkstands, with extra well for red ink, size of base 7½x12½	4 50
3116	Same as No 3115, mahogany finished base	4 88

With sponge cup in place of extra red ink-well

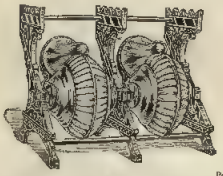
No.		Each
3117	Same as No. 3113	$3 38
3118	" " 3114	3 76
3119	" " 3115	4 50
3120	" " 3116	4 88

METAL

No.		Per doz.
4484	Marcot, finish, size of base 8x4, 1½ dozen in package	$3 50

INKSTANDS—Continued

METAL—Continued

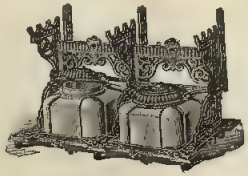


No. 4492 Maroon finish, size of base 4x6, ½ dozen in package — Per doz. $6 00

No. 4606 Maroon finish, size of base 3½x5 — Per doz. $6 00

No. 4614 Maroon finish, size of base 3½x7½ — Per doz. $10 00

No. 269 Bronze green finish, size of base 4½x6 — Per doz. $8 00



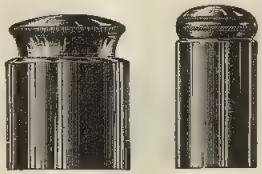
No. 279 Bronze green finish, size of base 5½x9½ — Per doz. $14 00

No. 800 Fine twisted glass, 2¾ inches square, with improved spiral pen rack and swivel cover, bronze green japan finish, size of base 5½x6 — Per doz. $9 60

No. 805 Fine twisted glass, two ink-wells, 2½ inches square, with improved spiral pen rack and swivel cover, bronze green, japan finish, size of base 6½x10 — Per doz. $14 00

No. 825 Same as No. 805, two ink-wells and one sponge cup, size of base 6½x12 — Per doz. $19 00

RUBBER Cuts full size



No. 942 Round, 1 dozen in package — Per doz. $3 64
943 Oval, 1 " " 4 16

No. 945 Round, 1 dozen in package — Per doz. $5 20

FANCY

No. 85103.

No. 85103.

No. 85103 Metal, removable wells, 6 in package 4 each, design of chauffeur, owl's head, and ideal head — Per doz. $4 00

No. 85119.

No. 85105.

No. 85119 Metal stand, cap and chain gold plated, size 3x3½ — Per doz. $4 00
85105 Embossed metal base, gold finish, polished metal cup, diameter 4 inches — 4 00

No. 85120 Metal tray, rack and cap all gold plated and embossed size 3½x5 — Per doz. $4 00

No. 85121.

No. 85100

No. 85121 Metal tray and cap embossed artistic design, chain gold plated, size 4½x5 — Per doz. $4 00
85100 Metal design of moose's head, empty ink well — 8 00

No. 85102 Copper finished metal with pen tray removable tray — Per doz. $8 00

No. 85122 Glass ink-well, gold-plated metal tray and cover, gold-plated metal calendar stand with perpetual calendar — Per doz. $8 00

INKSTANDS, FANCY—Continued

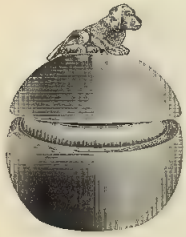
No. 85123 Glass ink-well, gold-plated metal tray and cover, also gold-plated metal stamp box . . . . . Per doz. $8 00

No. 85124 Metal tray, rack and hinged cap all gold-plated, size 7x4½ inches . . . . . Per doz. $8 00

No. 85125 Glass ink well, oxidized silver-plated pen tray and cover Per doz. $8 00

No. 85126 Sterling silver-plated metal base, hinged cover and mountings in poppy design, size 4½x5 Per doz. $8 00

No. 85127 Metal stand, cap and chain gold—plated, two ink wells. . . . . Per doz. $8 00



No. 85133 Metal old brass finish, oval, dog ornament, size 2½x2 inches . . . . . Per doz. $9 00

No. 85134 Metal silver-finished, stamp box and paper knife to match Per doz. $10 50

No. 85104 Large metal base, copper finish, glass well with copper-finished metal cover . . . . . Per doz. $12 00

No. 85110 Round, cut glass, with fine brass cap, in top of which is design of dog, diameter 3½ inches Per doz. $12 00

No. 85111 Cut glass with fancy glass cover Per doz. $12 00

No. 85112 Round, imitation Tiffany glass, with brass cap, removable well Per doz. $12 00

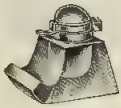
No. 85113 Square, imitation Tiffany glass, with brass cap, removable well Per doz. $12 00

No. 85115 Copper-finished metal, removable well Per doz. $12 00

No. 85129 Metal base, Greenish bronze finish, width 6 inches Per doz. $15 00

No. 85101 Metal base with metal figures of donkey and dog Per doz. $16 00

No. 85107 Metal, silver finish, removable well Per doz. $16 00



No. 85109 Metal, brass fittings removable well Per doz. $16 00

No. 85116 Double, metal, ebony finish, removable wells Per doz. $16 00

INKSTANDS, FANCY—Continued

No. 85117 Double, removable wells, copper-finished metal, embossed, wide pen tray on front . . . . . Per doz. $16 00

No. 85106 Double, fancy green metal base, removable wells brass covers . . . . . Per doz. $21 00

No. 85108 Metal, bronze finish, removable wells, and removable blotter with handle, tray for pens Per doz. $24 00

No. 85114 Cut-glass base with groove for penholder, brass cover Per doz. $24 00

No. 85128 Silver-plated metal base, pen rack, and cover, all in French gray finish, two removable ink-wells, celluloid perpetual calendar. . . . . Per doz. $24 00

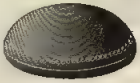
No. 89705 Metal, silver finish, combination of inkstand and folding paper-holder, removable well, size 5x5x5 Per doz. $30 00

No. 85131 Brass, heavy embossed design, two Angel-cover ink-wells size 4½x8 Per doz. $36 00

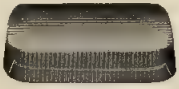
No. 85132 Embossed metal, French gray finish, combination clock and ink-well, horse design, ivory dial, one day time, height 5½ inches, length 7½ inches Per doz. $72 00

PAPER WEIGHTS

No. 63 Clear glass, diameter 3 inches Per doz. $1 32



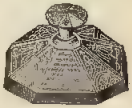
No. 198 Clear glass, beaded edge, recess in bottom, diameter 3 inches . . . . . Per doz. $1 56



No. 194 Cut glass, recess in bottom, size 2½x4 Per doz. $1 66

PAPER WEIGHTS—Continued

No. 199 Clear glass, beaded edge, recess in bottom, size 2½x4 Per doz. $1 66



No. 201 Iron, maroon finished, diameter 3½ inches, weight 1 pound. . . . . Per doz. $2 00

No. 85157 Cut glass, three styles in package, size of base 1¾ inches... . . . . Per doz. $7 50

No 85152

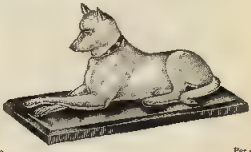
No 85155

No. 85152 Cut glass, six sided in which is design of elephant in white diameter 2½ inches $8 00
85155 Cut glass, 2 inches square 8 00

No 85158

No. 85158 Cut glass, diameter 2¼ inches $8 00

No. 85150 Cut glass in which is design of boy's head in white, diameter 1½ inches. 12 00
85151 Cut glass in which is design of dog's head in white, diameter 1½ inches 12 00



No. 85153 China hound on black glass, size 5½x2¾ Per doz. $12 00

ILLUSTRATIONS IN NATURAL COLORS OF ***KEEN KUTTER*** POCKET KNIFE HANDLES

GERMAN SILVER

PEARL

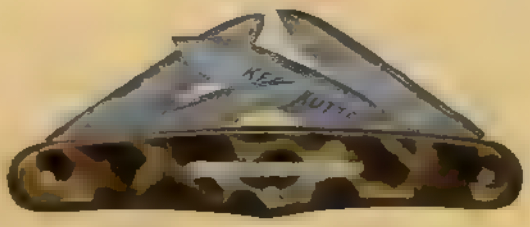
GENUINE IVORY

STAG

WHITE BONE

ALUMINUM

GENUINE STAG



GENUINE TORTOISE SHELL

BUFFALO HORN

COCOBOLO

EBONY

SILVER CELLULOID

TRADE MARK:
E. C. SIMMONS' KEEN KUTTER,
REGISTERED.

Information Regarding KEEN KUTTER* Pocket Knives (Continued).

Coverings—As illustrated in their Natural Colors on page 2642, are as follows:

German Silver—Producing an appearance quite similar to Sterling Silver.

Pearl—Obtained through the London markets from the Dutch East Indies and Australian Fisheries, where the Highest Quality of Pearl is found.

Genuine Ivory—Obtained from the elephants of the West Coast of Africa, where the Ivory is found to be much Superior in Quality—especially in hardness—to that of the Eastern Coast, and of Asia.

Cut Stag—Made by Artificially Cutting the Second Layer of Genuine Stag, or sometimes Bone and carefully coloring until it so closely resembles Genuine Stag, both in its irregular surface, and color, as to be difficult to distinguish from the real article.

White Bone—The shin bone of beef cattle, which, when carefully selected and cured, gives a covering capable of High Finish and Good Wearing Qualities.

Aluminum—Which is especially adapted for Engraving Fancy Decorations.

Genuine Stag—Outside cut of the horn, obtained from Hungary, Bohemia, Ceylon and China, which countries produce the Highest Quality of Stag.

Tortoise Shell—Obtained chiefly from the Hawks Bill Tortoise, found in various parts of the world, especially in Asia and Australia.

Buffalo Horn—From the Buffaloes of Siam and India.

Cocobolo—A hard, red wood of very fine grain, which grows chiefly on the Isthmus of Panama.

Genuine Ebony—A hard black wood of very fine grain, obtained chiefly from the East Coast of Africa and Madagascar.

Celluloid—A manufactured composition produced either Transparent or in a great Variety of Colors. It may be made in Imitation of almost any of the other coverings which are used on the Knives, except German Silver.

Linings—The Linings are of German Silver, Brass or Steel, whichever is best adapted to the particular Knife on which it is used. The outside edges are Milled (or Knurled), in several of the more expensive patterns.

Bolsters—The Bolsters are, in the great majority of cases, of German Silver, or in a few cases, on the heavier Knives, of Steel.

Rivets—The Rivets are of German Silver and Steel.

Shields are made of German Silver, in various shapes and sizes, as best adapted to each individual pattern.

Back Springs are made of Forged Steel, Uniformly Tempered, Carefully Fitted and Full Polished, as specified in the descriptions; some of the patterns have Fancy Hand Engraved Backs.

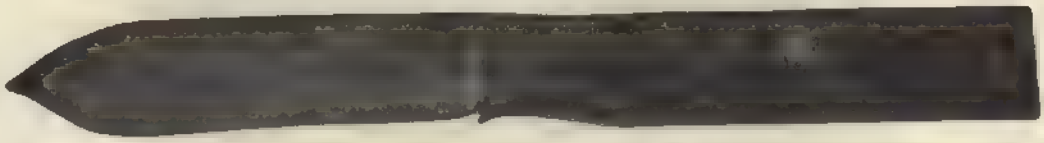
Care of a Knife—Much trouble is caused, and many Knives prove unsatisfactory from the lack of proper care. A well made Pocket Knife is a piece of very fine mechanism, and should be kept cleaned and oiled at the joints as carefully as any other piece of fine mechanism. If this is done we are confident that every Pocket Knife bearing the KEEN KUTTER brand will give the user complete and lasting satisfaction. If it does not he is [illegible] protected by the liberal guarantee which accompanies KEEN KUTTER Pocket Knives, and all other [illegible] goods.

WE ABSOLUTELY GUARANTEE ALL KEEN KUTTER POCKET KNIVES AGAINST DEFECTS O[illegible] OR FLAWS.

KEEN KUTTER POCKET KNIVES

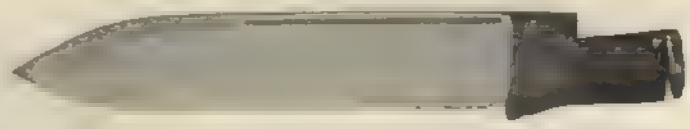
HOW THEY ARE MADE.

Pocket Blades.

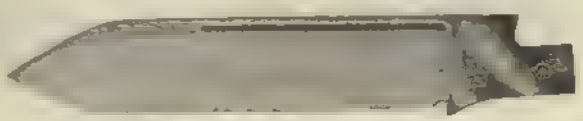


No. 1—Pocket Blade for No. K2420 Partially Forged Showing Steel Bar from which it is being Fashioned.

No. 2—Pocket Blade Forged, Ready for Hardening and Tempering or Grinding.

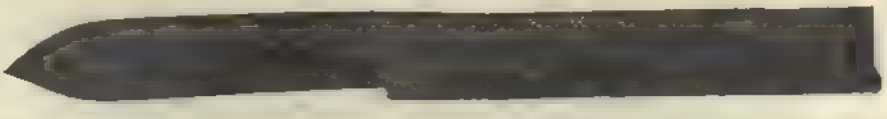


No. 3—Pocket Blade Ground, Ready for Drilling and Filing, or Drilling and Squaring.



No. 4—Pocket Blade Ready for Assembling, Filed and Dressed or Drilled, Squared and Dressed.

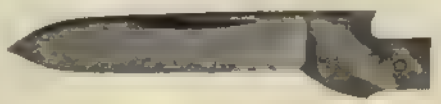
Pen Blades.



No. 1—Pen Blade for No. K2420, Partially Forged; Showing Steel Bar from which it is being Fashioned

No. 2—Pen Blade Forged, Ready for Hardening and Tempering or Grinding

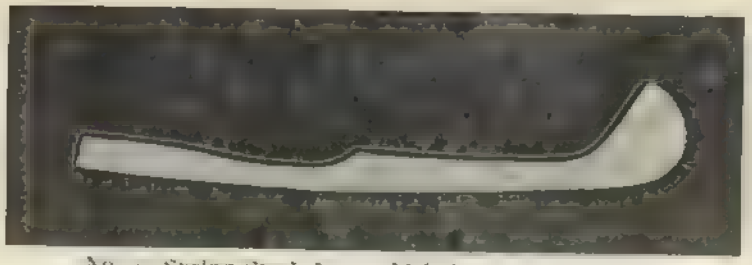
No. 3—Pen Blade Ground, Ready for Drilling and Filing, or Drilling and Squaring



No. 4—Pen Blade Ready for Assembling, Drilled, Filed and Dressed or Drilled, Squared and Dressed.

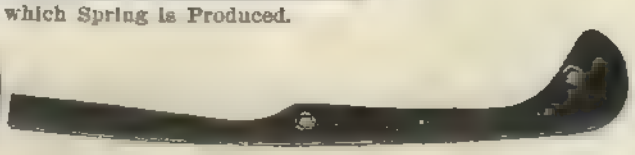
KEEN KUTTER POCKET KNIVES.

HOW THEY ARE MADE



No. 5—Spring Steel, from which Spring is Produced.

No. 6—Spring, Dressed and Drilled, Ready for Adjusting.



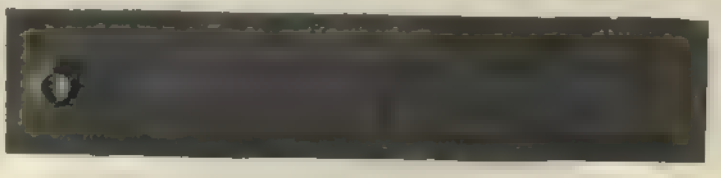
No. 7—Spring Adjusted, Filed, Hardened, Tempered and Dressed.

No. 8—Sheet Brass, from which Linings are Pressed

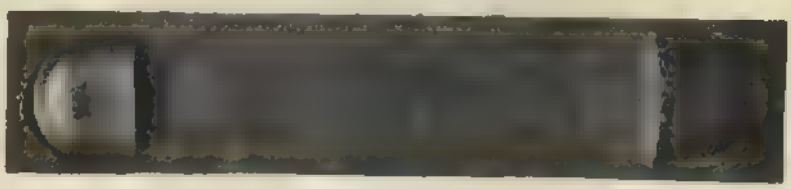
No. 9—German Silver, from which Bolsters are made

No. 10—Blank for Bolster, Pressed Ready for Stamping

No. 11—Bolster Stamped up, Ready to Fasten to Lining.



No. 12—Brass Strip, Pierced, Ready to Receive Bolster.

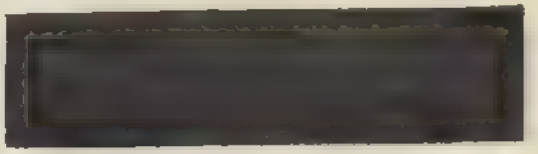


No. 13—Bolsters "Chopped on" Lining, Ready for Passing through Pattern Dies.

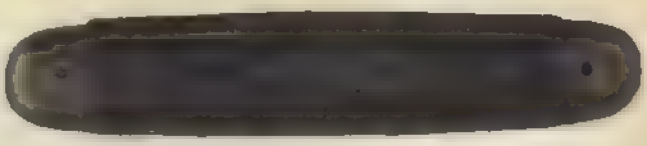
No. 14—Scale Pressed, Ready for Drilling.

KEEN KUTTER POCKET KNIVES.

HOW THEY ARE MADE



No. 15—Handle Covering Ready for Fitting

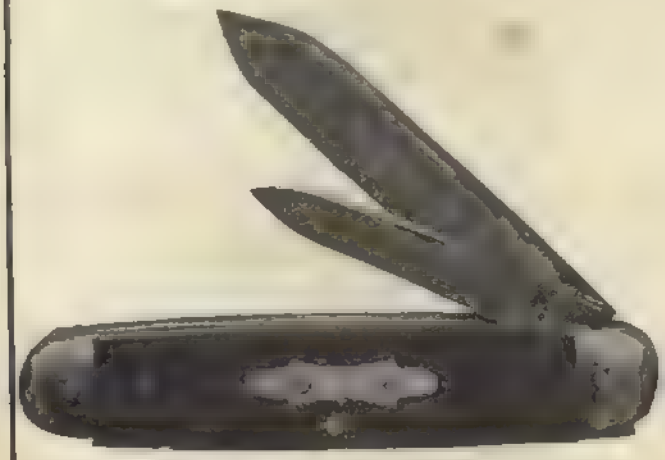


No. 16—Covering Fitted, Ready for Name Plate.

No. 17—Name Plates, or Shields, and German Silver from which they are made.

No 18—Scales, with Covering Fitted, Showing Name Plate and Reverse Side, Ready for Assembling into Handle

No. 19—Division Scale, or Center Lining.



No 20—Knife Ready for Final Adjusting—Note Loose Rivets and General Rough Appearance of Knife.

No. 21—The Finished Article

INFORMATION

REGARDING *KEEN KUTTER* POCKET KNIVES.

It is our aim to furnish under the *KEEN KUTTER* Brand the Highest Quality of Pocket Cutlery which can be produced. That we have accomplished this is shown by the Awards for the Highest Quality, granted to this line at the Louisiana Purchase Exposition, held in St. Louis, Mo. in 1904, and the Lewis & Clark Exposition held in Portland, Ore. in 1905, illustrations of which are shown on pages 2634 and 2635. We believe this result cannot fail to follow from the method which we use in the manufacture of the goods.

It is our constant aim to see that everything about the line is of absolutely the Highest Quality, from the selection of the Raw Material to the Wrapping and Packing of the finished product.

Workmanship—Nearly 90 per cent of the men who manufacture this line were schooled in the art of making Fine Cutlery in the best English factories, where they learned their trade, and where their fathers and grandfathers spent their lives in the manufacture of Pocket Knives. The men are liberally paid for their work and are constantly reminded that the item of quality is of much more importance than quantity.

Blades are made from the Highest Grade of English Crucible Steel imported especially for the purpose. They are Forged by hand from the Bar, and not stamped out from sheet steel (the method employed by many makers of Knives). They have an absolutely Uniform Temper, and are Whetted by Hand on an Oil Stone to a Sharp Cutting Edge, Ready for Use.

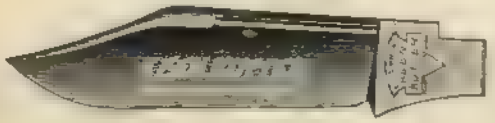
As specified in the description, the Blades are either Full Crocus Polished (i. e., each Blade Polished on Both Sides) or Half Polished (i. e., Large Blade Polished on One Side and other Blades Glazed Finish).

Patterns of Blades—The line contains every possible shape of Blades which is at all practical, as is shown by the following illustrations.

Eraser.

Saber

Wharncliffe


Clip

Spear

Budding.

Sley.

Pruning.

Sheep Foot.

Razor

The 1909 Cadillac "Thirty"

Hugh Dolnar

The Cadillac Motor Car Company, Detroit, Mich., offers for the season of 1909 an entirely new model 5-passenger touring car, 106 inches wheel base, motor 4 cylinders, 4 x 4½ inches, 4-cycle, water cooled, 30 H. P., sliding gear, 3 forward speeds and a reverse, selective type, tires 32 x 3½ inches, $1,400 00, and with tires 33 x 4 inches, $1,445 00.

This car is first-class in every particular, has ample room for five passengers, is on half elliptic springs in front and platform spring assembly in the rear and is believed by the Cadillac engineers to be as good a car of its dimensions as is built anywhere by anybody.

This Cadillac 30 has also the great convenience of turning in a circle of only 30 feet diameter, so that it can turn around in streets of even less than common width without backing, which is a real everyday and all the time advantage.

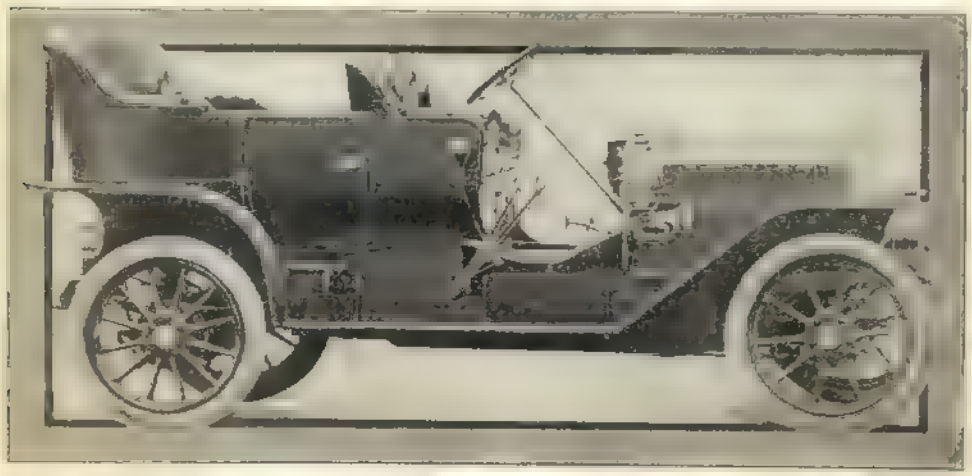


Fig. 1. The 1909 Cadillac "Thirty." Wheel base 106 inches. Tires 32 x 3½ or 33 x 4. $45.00 added to regular price for the larger tires. Motor 4 cylinders 4 x 4½ 4-cycle water cooled copper water [illegible] heads 30 H. P. Selective sliding gear 3 forward speeds and a reverse all gears [illegible] steel [illegible] and side shafts on annular ball bearings. Weight of complete car as here shown 2415 lbs. Price including 3 oil lamps, horn and tools, $1400 00. Rubber Cape top $75.00 and Mohair Cape top $125 extra.

NOTABLE FEATURES.

The front wheels are on two circles of 2-point ball bearings 9-16-inch balls outside, ¾-inch balls inside. The rear axles are on annular bearings at the inside ends and on Hyatt roller bearings outside. The rear wheels are fixed to the tapered axle ends with keys and retained with nuts. The springs are half-elliptics in front and platform in the rear with ball shackles between the rear spring members, giving a free side motion, but this car showed, Hugh Dolnar rear seat passenger and observer, only a very slight side sway, not at all objectionable, when driven, by request, at 38 miles per hour over a rough dirt road, with no spring checks or shock absorbers and only very little tossing of passengers, these 1909 Cadillac springs being among the very easiest ever ridden by the observer.

The front axles are steel tube bodies, 2 ins. outside, 1¼ inches inside, ⅜ walls, with steel drop forging yokes and spring-perches pinned, riveted and brazed to the axle tubes.

The rear axle is steel tube, 2¾ inches outside, 2 7-16 inches inside, 5-32 inch wall with steel casting, bevel-gear housing, riveted to the tubular axle members. The side springs are revolubly perched on the axle and the ball joint shackles give a perfectly free connection with the cross-spring ends, so that there is no spring resistance to side sway, yet the springs are so proportioned that the side sway is very slight, as before mentioned, and what side sway there is is agreeable to the tonneau passengers rather than disagreeable.

The propeller shaft housing is a steel tube with a telescoping globe member electrically welded to its front end, having a steel casting ball bearing shell riveted to its rear end.

The bevel gear is on 2-point ball bearings with locked adjustments at each, accessible through small hand plates on each side in the rear, which are not shown in the sectional assembly of the rear axle given herewith. With balls of sufficient diameter the 2-point bearing is durable, and with a readily-reached, locked adjustment enables the user to take up lost motion at any time, in a manner structurally impossible with annular ball bearings. Ex-

tended successful practice fully warrants the entire rear axle assembly shown in these 1909 Cadillac Thirty illustrations.

A new and extremely valuable feature in spring fastening is shown in the addition of a third spring clip or spring plate, placed in the middle over the spring perch between the ordinary screw spring clips at the ends of the spring perch. This third spring clip holds the middle of the spring firmly to the perch, and not only prevents loosening of the spring clip nuts but in a great measure eliminates spring breakages, which commonly occur directly over the middle of the spring perch, between the two clips used in ordinary practice. This third clip on the front springs is made to serve also as a rubber buffer holder. The rear springs are absolutely free, and have something like 8 or 9 inches clear closing room.

PATENTED STEERING GEAR

The steering is by a worm and worm gear sector, both hard, the sector teeth cut on a slightly less pitch radius than suits the worm. The worm journals are in eccentric bearings with large index notches, so as to be easily adjusted by a driver of ordinary training. Owing to the worm sector short pitch radius, center located as specified, when the sector is shoved up tight to the worm in mid-position it is free at both extremes, hence considerable wear can be taken up without causing the steering action to bind when in extreme positions. It is true that the short sector radius makes a slight clearance at extremes, but this is not noticeable on the road as the thrust of the wheels is all one way on curves; the "tight in the middle" feature enables the mid-position lost motion to be taken up so that this steering action is certain to respond to the slightest movement of the steering wheel away from straight ahead position, which is what is required. This small-radius worm-sector is patented. The Cadillac practice is to make the sector radius about seven one thousandths less than normal for the coacting worm.

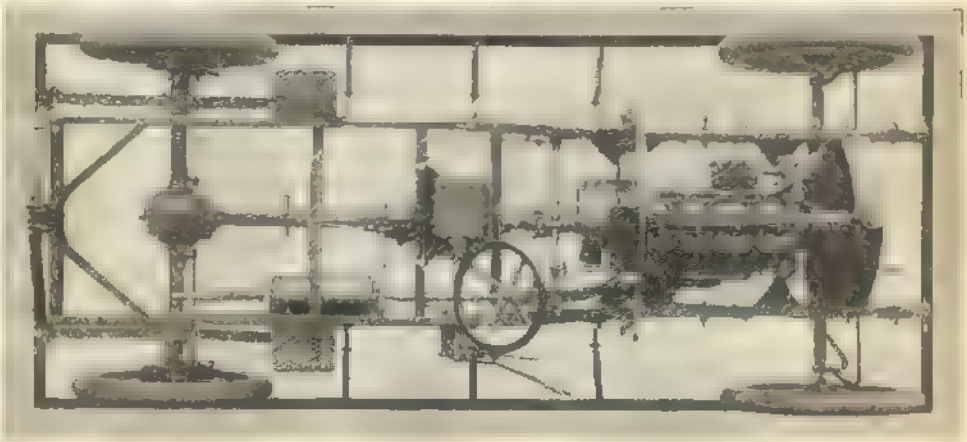
The clutch cone is pressed steel, instead of the usual aluminum casting, ⅛-inch thick, very light, stiff and strong, and the universal joint between the crankshaft and gear-box line-shaft is a hardened cross with rectangular arm ends in slots in the soft fork ends; these fork slots have open ends for assembling, openings closed with screws through the fork slot sides and distance block, making an extremely good and reliable construction.

The muffler cut-out is a spring loaded poppet valve, which is opened automatically in case of muffler explosions, is pedal opened to cut out the muffler and can also be used for a third function in which the exhaust sounds the horn or is directed to foot-warmers.

WATER JACKET CONSTRUCTION.

The Cadillac motor construction has always used drawn copper water jackets with applied cylinder heads, retained by a peculiar right and left threaded sleeve, the cylinder being tapped left hand and of course taking the left hand thread of the sleeve leaving the right hand thread of the sleeve standing above the faced cylinder end to take the tapped cylinder head. This method of uniting the head and cylinder permits locating the head in any desired angular position with relation to the cylinder, correct position fixed by a removable dowel.

The illustrations given show the front wheel and rear axle bearings, two-point ball bearings for the front wheels, and two-point ball bearings for the inside ends of the rear axles. These ball bearings are adjustable, so that any lost motion can be taken up. The outside ends of the rear axles carry the rear wheels, and are in



[illegible] chassis plan showing the [illegible] arrangement of parts. Note the universal [illegible] and rear spring construction.

Hyatt roller bearings next to the inside ends of the wheel hubs.

SPECIAL SPRING CLIPS.

The front springs are half-elliptics, 36 inches long by 2 inches wide, six leaves, perched 16 inches from front eye to middle of front axle, front eyes jointed to chassis frame, front ends and rear eyes linked to the chassis frame sides. Both the front and rear springs are held with the ordinary U-shaped spring clip at each perch end, with two nuts underneath, spring retaining washers under the nuts. These two clips do not bear directly on the inside spring leaf but on short caps or "spring plates," same length as the spring perch, grooved at each end to take have two screw holes in each which pass over spring perch studs, split washer retained stud nuts on top of these peculiar spring plates drawing the middle part of the spring down hard on the spring perch thus providing six studs to each spring. The spring plates are steel drop forgings, ribbed, very strong, and serve not only to assist in holding the spring in place but as reinforcers which greatly reduce the probability of spring breakages between the ordinary spring clips directly over the axle.

The front spring plates have rubber buffer seats, dovetailed, for holding the buffers in position. The rear ends of the chassis frame sides are raised two inches, the clip cross-member. The spring plates giving ample axle clearance so that no rear buffers are needed. All Cadillac springs have the usual, small, leaf-assembly retention bolt, 5-16 diameter, in the middle, and the spring location is further assured by counterboring the top of the perch to take the ½ diameter head of this leaf retaining screw, which must be sheared before the spring can shift endwise on the axle. The front spring perches are drop forgings, bored, slipped on the tubular steel front axles and fixed by a ⅜ diameter through rivet and brazing

These Cadillac 1909 platform springs are well shown in Fig. 3, also the chassis rear cross-member and cross-spring construction and support. The cross-spring supports sometimes half and sometimes the entire rear end of the car, requiring great strength in the chassis frame rear cross-member and in the cross-spring bracket. The shackles which couple the cross-spring and side spring ends are important members of the platform spring assembly and the Cadillac shackle construction, believed to be original, differs from all others in taking the ordinary double clevis construction and interposing a 1 inch diameter steel ball between the two, finished seats in the clevis bends retaining the ball in position under load. This of course acts as a universal joint yielding with entire freedom in all directions.

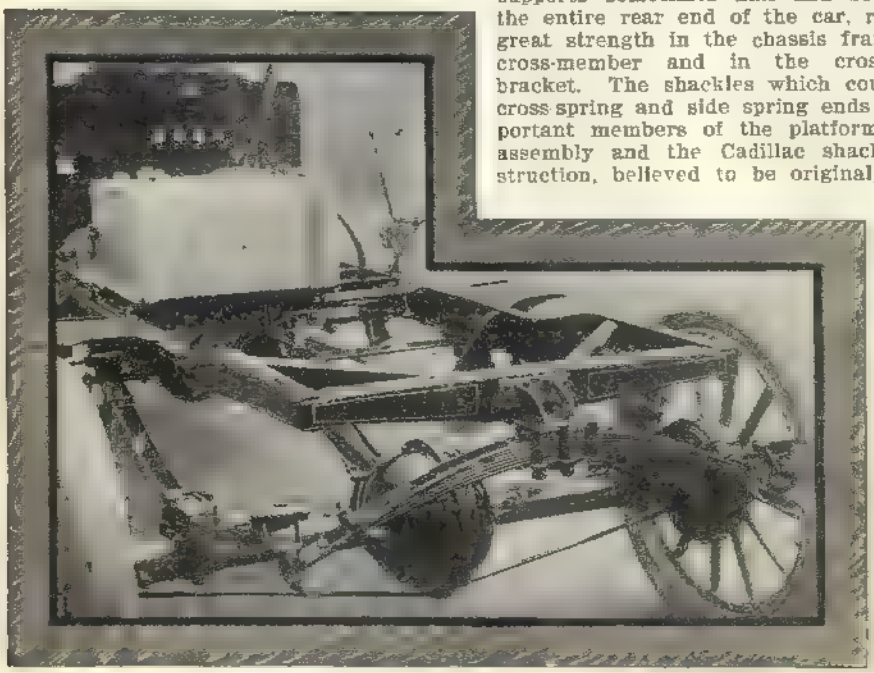


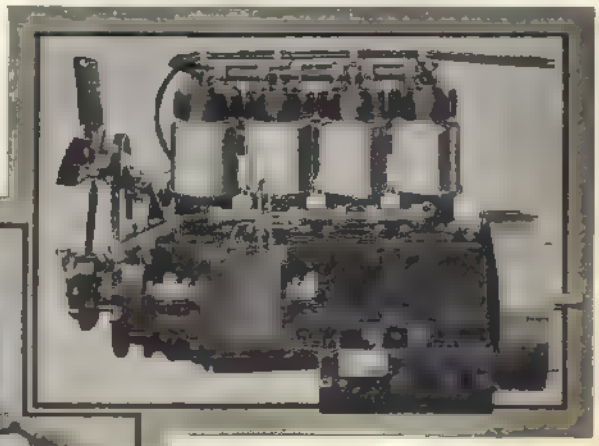
Fig. 3. 1909 Cadillac Thirty chassis rear showing platform spring construction, side spring placing and support and ball shackle connection between the platform side and cross-spring ends, as fully considered in text

The side springs are 44 inches long by 2 inches wide, 7 leaves, lipped, graded, perched 19 inches from rear eye to rear axle middle. The ends of all Cadillac Thirty springs have hardened steel bushes with hardened steel pins and heavy grease cup lubrication. The front ends of the platform side springs are supported in malleable casting forked brackets, riveted to the chassis frame sides. These springs

are fixed to the revoluble rear axle perches by two clips and a spring plate with two screws, 6 screws in all, as previously described. The platform spring shackles are steel drop forgings, have finished ball seats, 1-inch diameter balls, with heavy grease cup lubrication, all as shown in Fig. 3

The cross-spring steel drop forged bracket is hot riveted to the chassis frame rear end with 11 rivets, 5-16 diameter, passing through the bracket, the chassis frame cross-member and the substantial channel section pressed steel double diagonal brace which reaches from each side frame to the cross-member inside. The cross spring is 38 inches long by 2 inches wide, 7 leaves, graded

The new third spring clip reinforces the spring leaves at their weak middle point, and thus not only fixes the spring securely to the spring perch, but very greatly strengthens the spring leaves themselves.



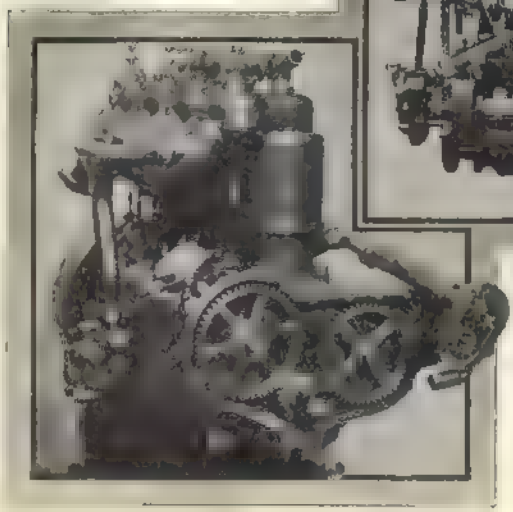


Fig. 4 Side and oblique front view of 1909 Cadillac Thirty motor The front shows clearly the arrangement of the half time gears, water pump and bevels driving the timer. The arrangement of the inlet and exhaust pipes is also shown. The side view shows the fan and its mounting the shaft driven lubricator and the hand hole crank case cover plate removed

The frame is of pressed steel, is 137 inches long, two widths, 30 inches front and 33 inches rear, greatest depth 4 inches, 3-16 thick, all 1½ inches wide, rear ends raised 2 inches, to give rear axle clearance. A pressed steel tonneau step is riveted to the top of each frame side.

THE 1909 CADILLAC THIRTY MOTOR.

The four cylinders, 4 x 4½ inches, are gray iron with applied heads and copper water-jackets, individual castings, giving free access to the eye and hand everywhere. All cylinders work on the 4-stroke cycle, have aplied heads and applied copper water-jackets. The motor base is gray iron, with a gray iron oil basin. The valves are all 1¾ diameter gray iron heads, 45 deg. angle faces, 7-16 diameter cold-rolled steel valve stems, shouldered to ⅜ diameter, heads retained by riveting.

It is worthy of note in view of common car motor practice valve material, valve-stem material, and valve and valve stem construction generally, that the Cadillac Company now has over 50,000 of these gray-iron valve heads applied to cold-rolled steel valve-stems in use with never yet one solitary valve or valve-stem failure, and no complaint from any user.

The Cadillac cams are applied to the cam shafts, taper pin retention, the cams are hardened and ground, everything about the cam shaft perfectly interchangeable. The cams impinge hard steel rollers, 1¼ inches diameter by ⅜ face, on ⅜ diameter pins, all hardened and ground, rollers in ⅜ diameter case hardened steel lifters, sliding in gray iron bushes, and there is a screw adjustment for the valve lift. The valve ports are all 1½ inches diameter and the intake valve lift is 5-16, exhaust 11-32.

The crankshaft, 5 bearings, is 1½ inches diameter wrists and bearings the same, all ground.

The drop forged steel rods are 8½ inches C. to C. The wrist rod-bushes are babbit lined bronze, and the rod cap is hinged at one end and held at the other end by a bolt, head on a spherical washer, thread tapped into the rod lug, with a "Columbia" retaining nut. The crankshaft boxes are babbit lined bronze, in halves, closed on liners about 3-16 inch thick, supplied to users for replacement in different thicknesses, if it is preferred not to risk reducing liner thickness by ordinary repairmen, with the risk of non-parallel box-closing.

FUEL SUPPLY.

The rectangular galvanized fuel tank, 14 gallons capacity, is placed under the left front seat cushion, so as to be readily

reached. The carburetor is a float feed, concentric with the stand pipe fitted with a needle valve to regulate the gasoline opening to the fixed diameter carburetor throat and is fitted with an automatic auxiliary air admitting valve, operated by piston suction. The fuel tank is

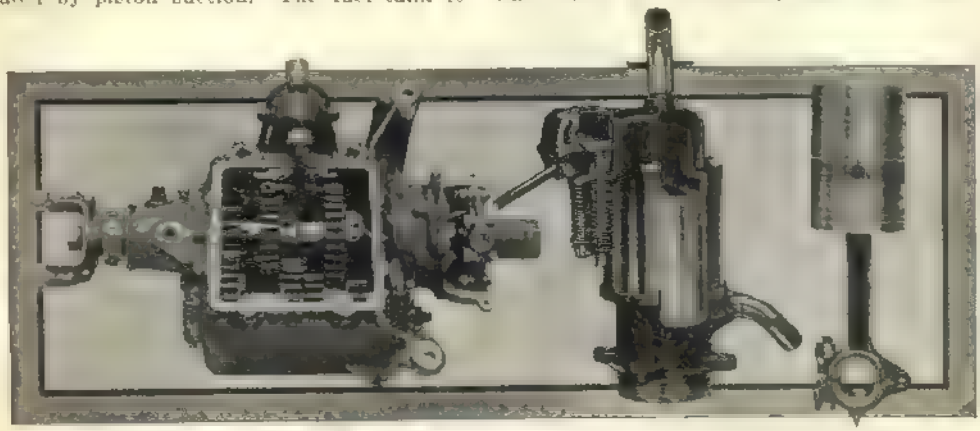


Fig. 5. 1909 Cadillac Thirty change [illegible] gears, piston and connecting rod and section of cylinder with copper water jacket as explained under "Water Jacket Construction." All change gears are hardened, also the shafts which run on annular bearings. Operation is selective, 3 speeds forward and a reverse.

on the left and the carburetor is on the right side making the gasoline supply pipe reach across the hood space giving the needful length and elasticity to avoid liability to breaking by shock or vibration.

THE 1909 CLUTCH.

The clutch is a pressed steel, leather faced male cone 12½ inches, large diameter engaging a gray iron female cone applied to the flywheel. This female cone has rear sections partly freed by cutting, which act as gradual engagement springs, giving a very gradual and smooth starting action. The spring thrust is about 365 pounds.

THE CHANGE GEAR.

The box is gray iron as shown in Fig. 5, with a gray iron cover. The gears and line shaft are hardened, both line and side shafts are on annular bearings, the change is selective, 3 forward speeds and a reverse.

The universal joint is two forks, one on the line shaft and one on the propeller shaft with bronze bushes on the hardened and ground fork ends, the bushes being screw-pinched in a ring in halves. The universal joint housing is a finished internal sphere, capped to take the globe zone of the forward propeller shaft sleeve end. No torsion arm is used, the propeller shaft sleeve being of ample strength to pre-

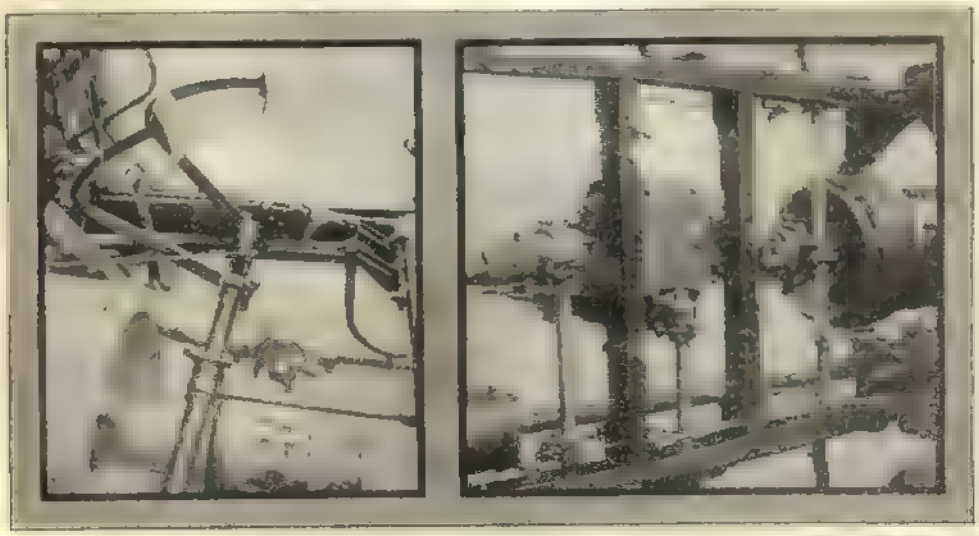
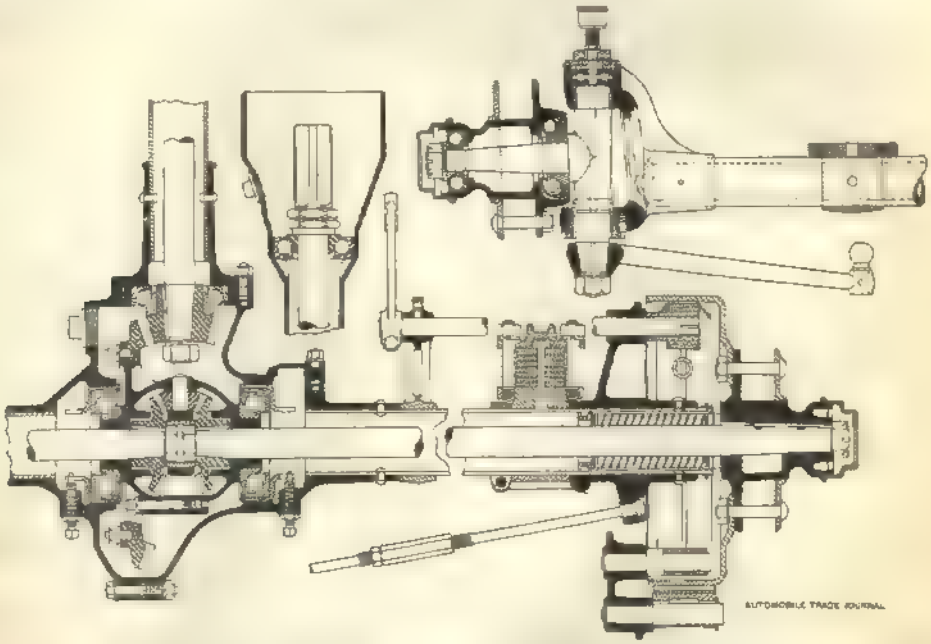


Fig. [illegible] A, the left, 1909 Cadillac Thirty clutch universal joint between clutch and line shaft of gear box, and [illegible] of the forward end of the [illegible] tube, the [illegible] gear [illegible] of [illegible]

vent the rear axle from revolving by the bevel gear action. The bevel pinion is on large balls in 2-point races, as is the bevel gear and the bevel balance pinion shell.

BRAKES

The rear wheel brake drums, 12 inches



[illegible] and rear axle constructions of the 1909 Cadillac Thirty. The front axle is a steel tube, [illegible] forged steel spring perches. The greatest [illegible] hub axle diameter is 1¾ inches. The [illegible] or vertical members, 1¾ inch diameter, are integral. The rear construction [illegible] supplied with ball bearings. [illegible] right is shown the rear spring perch, brake drum and rear hub construction. These details are treated in text.

outside diameter by 11½ inches inside diameter by 2½ inches working face width, are applied to the rear hub spoke flanges by the 6 rear hub spoke bolts ¼ inch diameter. The exterior steel band brake is lined with "Thermoid," and the two, internal, cam-rocker expanded, malleable casting internal brake shoes, are jointed together at the bottom on a ¾ inch diameter stud, riveted to the brake cover, and these internal brake shoes are also faced with Thermoid. These brakes are powerful and control the car easily.

CONTROL

The spark and throttle regulation levers are ratchet-sector retained on top of the steering wheel. The steering action is a worm and the off-center worm sector before specified. The foot board has 2 large pedals; that at the right when pushed forward applies the exterior ordinary brake bands through a full length, folded, sheet-steel evener, see Fig. 2, sliding in slot brackets applied to the chassis frame sides underneath. The left hand large pedal is pushed forward to release the clutch. There are two hand levers, the outside lever is pulled to rear to first disengage the clutch and next apply the internal brakes. The inside hand lever is hung to vibrate against two springs and works in four slots to give three forward speeds and a reverse

The muffler cut out, 3 functions, is closed by a spring and automatically opened by excessive muffler pressure, or is opened to the atmosphere by one plunger pedal, or diverted to sound the alarm or to heat

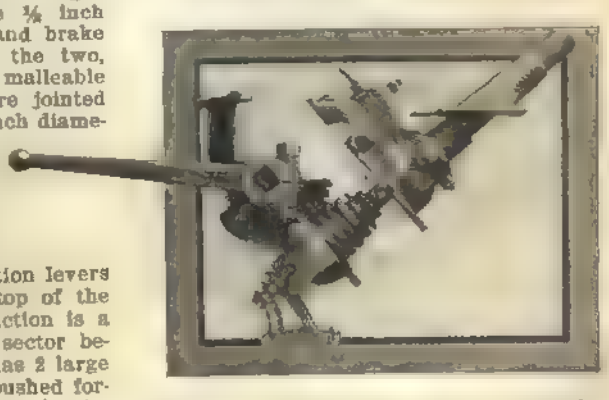


Fig. 8. 1909 Cadillac Thirty, steering gear construction. This very clear illustration shows the construction of the worm and sector steering action, with the patented too-short sector radius, discussed in text of the story, which permits this steering action to be kept always tight in straight ahead position, making the car responsive to slight movements of the hand wheel from straight ahead position.

a part of the car by a second plunger pedal. This provides for special equipments in

the original design, making the application of special exhaust supplied or exhaust operated devices easy. A plunger pedal accelerator opens the throttle, which returns to the hand lever adjustment as soon as the accelerator pedal is released. The 4-coil box is on the rear face of the front board.

ON THE ROAD

This $1,400 00, 30 H. P., 1909 Cadillac five passenger touring car, 106 inch wheel base, is priced so much below other cars of its power, capacity and dimensions that its road performance is a matter of more than passing interest to all prospective purchasers of five passenger touring cars in 1909.

If this $1,400.00 Cadillac Thirty is really a $2,500.00 article in points of thorough construction, power, speed and comfort of passengers, and is not merely a "cheap deception," looking to be much more than it can make good on the road, but is a really swift, durable and easy-riding car in every way equal to the best American motor cars of its dimensions, then everybody at all interested in automobiles wants early and reliable information as to its merits.

To fully show what this 1909 Cadillac Thirty is, on the road, two round trip Pontiac runs were made, about 100 miles total, in one of which the observer rode in the tonneau one way to be sure about the platform spring action. On Friday, October 16, the 1909 Cadillac Thirty left the Cadillac factory at 10 a. m., five passengers up—including the driver, the writer as observer, and was driven to the Hodges House, Pontiac, 24 miles, in 39 minutes, and from the Hodges House back to the factory in 41 minutes, no stop. The total scale weight of car and passengers was 3,405 lbs., and the car carried a glass wind shield in front and had a cape top, folded during this run. The roads were rough, and that prudent New England village Birmingham, yet insists on six miles pace within its borders which cannot be stretched much above ten miles with safety. The Detroit speed limit is fifteen miles, but twenty-five is permitted; altogether, the time, 48 miles in 80 minutes, was not bad at all, though of course not racing speed, and would probably have been ten minutes better if the glass wind-shield had been taken off before starting.

As to comfort of passengers, no five passenger car ever carried the observer more smoothly, either in front or tonneau seat. The springs were not supplemented by any checking or shock absorbing device; but there was absolutely no tossing of passengers, although much of the run was at between 45 and 50 miles on rough surface, where the observer prepared himself for sudden ascends and abrupt return to his seat which never materialized in any instance, much to his astonishment and bodily comfort.

Only three times did the front springs drop the chassis frame sides to the buffers so that impact could be detected, and there was absolutely no perceptible side-sway.

In short, the action of this 1909 Cadillac Thirty is fully equal to that of any car whatever that ever carried Hugh Dolnar, and good, even extremely good a driver as the car certainly had, the smooth riding of the 1909 Cadillac Thirty was not wholly due to his skill at the wheel, nor to the instant control of direction due to the absolute tightness of the steering action which made the car obedient to the slightest movement of the handwheel, but to the real excellence of the 1909 Cadillac Thirty design and construction.

Though both runs together covered only about 100 miles they showed conclusively that the Cadillac car is not built to sell merely, but is put together of good stuff, honestly handled by good mechanics, and that it need not take dust from many cars, big or little, and that it can land its passengers fresh and in good condition at the end of a long day's run over real American roads, which are as yet the worst ever, more shame to the American Eagle

---

Reports from Franklin dealers in the northwest are to the effect that they are making numerous sales to farmers who are buying automobiles in sufficiently large numbers to attract attention. Crops have been good and the big farmers and ranch owners find the automobile the quickest and best method of covering their huge farms and ranches.

The National Retail Automobile Dealers' Association has asked the tire and accessory people to help secure new members for the organization, agreeing to allow traveling men $1 for each new member. In many cases the tire and accessory people have refused to accept the bonus, directing their representatives to secure as many new members as possible without compensation.

Detroit Mfg. Supply Co., 38-42 Sherman street, Detroit, Mich., are producers of wiping cloth and offer a variety of goods in this line sufficient to meet all requirements as follows: New mill ends, consisting of very soft, light material, running 40 inches wide by 1½ to 10 yards in length, at 17 cents per pound; white new mill ends, 12½ cents; white wiping rags, thoroughly washed, sterilized and bleached at 8 cents; white knit, consisting of underwear, 7½ cents; A No. 1 grade of colored wipers, thoroughly washed, sterilized and disinfected, with all obstacles removed, 5 cents; No. 2 grade of colored wipers, which is also sanitary, 3½ cents. These prices cover delivery to customers.

Trade Mark E. C. Simmons KEEN KUTTER Registered

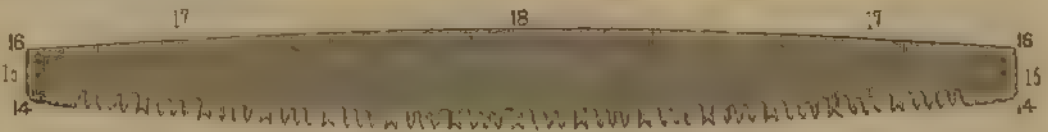
CROSS CUT SAWS.

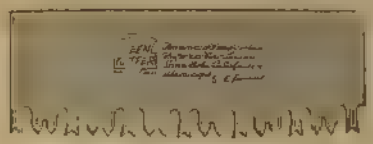
Without Handles.

If Handles are Wanted, Invariably Specify Separately for Them.

KEEN KUTTER*.

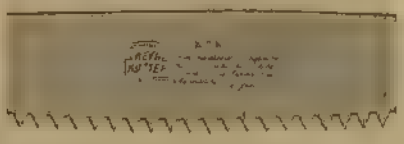
Highest Grade Crucible Steel EXTRA POLISHED AND ETCHED Ground Gradually Thinner from Teeth to Back, the Lines of Taper Curving Parallel to the Cutting Edge (see Cut), making a Thin Center Back (Lessening Friction), and Stiff Ends (Preventing Buckling). TEETH EXTRA FILED AND CAREFULLY SET, READY FOR USE; Papered and Stripped





Showing Curve Grinding on *KEEN KUTTER* Saws.

Made by the World's Best Saw Makers who put into them the Very Best Material and Workmanship.



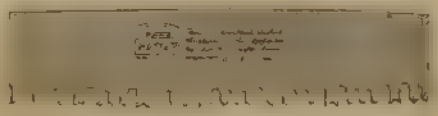
Tuttle Tooth, Wide Blade.

No. K100—*KEEN KUTTER; 14x18 Gauge.**

Length, feet	5	5½	6	6½	7
Width at Center, inches	7	7⅛	7⅛	7¾	7⅞
Weight each net about, lbs	7	7	8	9	10
Each	$3.10	3.30	3.60	3.96	4.20

No. K110—*KEEN KUTTER; 14x19 Gauge.**

Length, feet	5	5½	6	6½	7
Width at Center, inches	6¾	7¼	7½	7¾	8
Weight each net about, lbs	7	7	8	9	10
Each	$3.30	3.75	3.85	4.20	4.50



Tri-Cut Tooth (Dexter Pattern), Wide Blade.

No. K107—*KEEN KUTTER; 14x18 Gauge.**

Length, feet	5½	6	6½	7	7½	8
Width at Center, inches	7	7½	8	8	8½	8¾
Weight each net about, lbs.	7	8	9	10	12	14
Each	$4.10	4.50	4.90	5.25	5.65	6.05

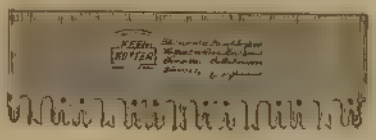
No. K112—*KEEN KUTTER; 14x19 Gauge.**

Length, feet	5½	6	6½	7	7½
Width at Center, inches	6½	7	7¼	7¾	7⅞
Weight each net about, lbs	7	8	9	10	12
Each	$4.35	4.75	5.15	5.50	5.90

Plain or Peg Tooth, Wide Blade.

No. K106—*KEEN KUTTER, 14x18 Gauge.**

Length, feet	4½	5	5½	6
Width at Center, inches	6¼	6¾	7	7¼
Weight each net about, lbs	4	5	6	7
Each	$2.60	2.90	3.20	3.50



Lance Tooth, Perforated, Wide Blade.

No. K108—*KEEN KUTTER; 14x18 Gauge.**

Length, feet	5½	6	6½	7
Width at Center, inches	6¼	6½	6¾	7
Weight each net about, lbs.	6½	7	8	9
Each	$4.25	4.50	5.00	5.25

No. K109—*KEEN KUTTER; 14x19 Gauge.**

Length, feet	5½	6	6½	7
Width at Center, inches	6¼	6½	7	7¼
Weight each net about, lbs	6	7	8	9
Each	$4.50	4.75	5.25	5.50

Each Saw Wrapped in Paper, Teeth Protected by Wood Strip

For Shipment, One to Six Wide Blade Saws as Ordered are Wired to a Board Weighing about 7 lbs.

TRADE MARKS
E. C. SIMMONS KEEN KUTTER
CHIPAWAY AND BLACKSNAKE
REGISTERED

CROSS CUT SAWS.

Without Handles.

If Handles are Wanted, Invariably Specify Separately for Them.

KEEN KUTTER* BLUE BRAND*.

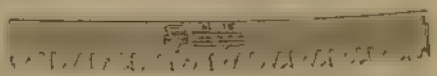
Highest Grade Crucible Steel; Ground Gradually Thinner from Teeth to Back, the Lines of Taper Curving Parallel to the Cutting Edge, making a Thin Center Back (Lessening Friction), and Stiff Ends (Preventing Buckling). TEETH EXTRA FILED AND CAREFULLY SET, READY FOR USE, Papered and Stripped

No. KB111 KEEN KUTTER BLUE BRAND*; Fine Blued and Etched; Tri-Cut Tooth Wide Blade; 14x18 Gauge

Length, feet	5½	6	6½	7
Width at Center, inches	6¾	7	7¼	7½
Weight each net about, lbs.	6½	7½	8½	9½
Each	$4 40	4 80	5 20	5 60

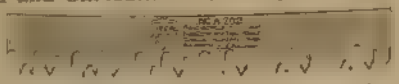
KEEN KUTTER*.

Highest Grade Crucible Steel Thin Back; Teeth Extra Filed and Carefully Set, Ready for use



No. K200—KEEN KUTTER*: Extra Polished and Etched; Champion Tooth, Narrow Blade; 14 Gauge.

Length, feet	5	5½	6	6½
Width at Center, inches	3⅜	3⅜	3⅜	3⅜
Weight each net about, lbs.	3½	4	4½	5
Each	$2 00	2 20	2.40	2.60



No. K202—KEEN KUTTER*; Extra Polished and Etched; Diamond Tooth, Narrow Blade; 14 Gauge

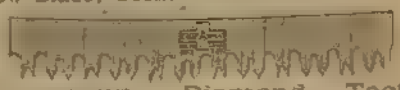
Length, feet	5	5½	6	6½
Width at Center, inches	3¼	3¼	3¼	3½
Weight each net about, lbs.	3½	4	4½	5
Each	$2 20	2.40	2.60	2 80

CHIPAWAY*.

Special Crucible Steel, Polished and Etched; Narrow Blade; Teeth Filed and Set

No. M208—CHIPAWAY*: Champion Tooth; 14 Gauge

Length, feet	5	5½	6	6½
Width at Center, inches	3¼	3¼	3¼	3¼
Weight each net about, lbs.	3½	4	4½	5
Each	$1.70	1.87	2.04	2.21



No. M203—CHIPAWAY*; Diamond Tooth; 14 Gauge.

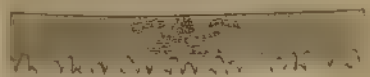
Length, feet	5	5½	6	6½
Width at Center, inches	3¼	3¼	3¼	3¼
Weight each net about, lbs.	3½	4	4½	5
Each	$1.80	1.98	2.16	2.34

No. M205—CHIPAWAY*; Perforated Large Tooth, 14 Gauge.

Length, feet	5	5½	6	6½
Width at Center, inches	3¼	3¼	3¼	3¼
Weight each net about, lbs	3	4	4½	5
Each	$2 00	2 20	2.40	2 60

BLACK SNAKE*.

Special Crucible Steel, Polished and Etched; Narrow Blade; Teeth Filed and Set.



No. B202—BLACK SNAKE*; Champion Tooth, 14 Gauge.

Length, feet	5	5½	6	6½
Width at Center, inches	3¼	3¼	3¼	3¼
Weight each net about, lbs.	3½	4	4½	5
Each	$1.70	1.87	2.04	2.21

...ent, One to Six Wide Blade, or One to Twelve Narrow Blade Saws as Ordered, are Wired to a Board Weighing about 7 lbs.

TRADE MARK: CHIPAWAY, REGISTERED.

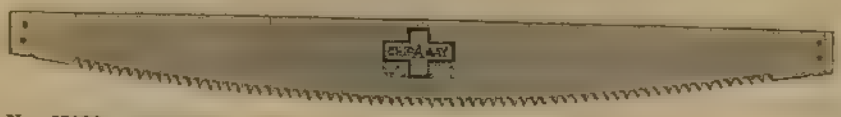
CROSS CUT SAWS.

Without Handles

If Handles are Wanted, Invariably Specify Separately for Them.

CHIPAWAY*.

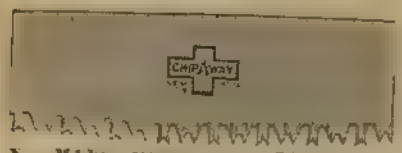
Special Crucible Steel, Polished and Etched, Ground Gradually Thinner from Teeth to Back; TEETH FILED AND SET.



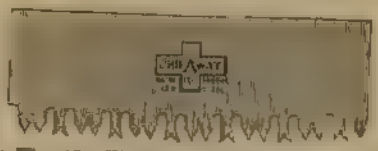
First Class Goods Built for Satisfactory Service.

No. M132—CHIPAWAY*; Plain or Peg Tooth, Wide Blade; 14x16 Gauge.

Length, feet	4½	5	5½	6
Width at Center, inches	5¾	5¾	6¼	6¾
Weight each net about, lbs.	5½	6	7	8
Each	$2.25	2.50	2.75	3.00



By making frequent calls on our Mail Order Department, you will be able to keep your stock complete and up-to-date, and hold your trade at home.

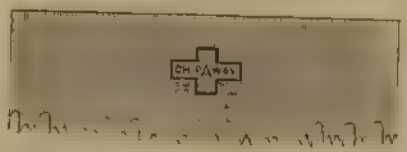


No. M128—CHIPAWAY*; Champion Tooth, Wide Blade; 14x16 Gauge.

Length, feet	5	5½	6	6½
Width at Center, inches	5¾	6¼	6¾	7
Weight each net about, lbs.	5	6	7	8
Each	$2.50	2.75	3.00	3.25

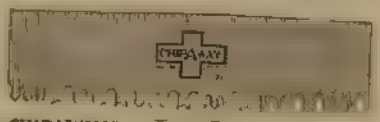
No. M129—CHIPAWAY*; Tuttle Tooth, Wide Blade; 14x18 Gauge

Length, feet	5	5½	6	6½
Width at Center, inches	5¾	6¼	6¾	7
Weight each net about, lbs.	5	6	7	8
Each	$2.50	2.75	3.00	3.25



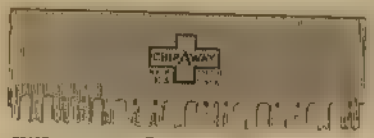
No. M130—CHIPAWAY*; Great American Tooth, Wide Blade; 14x18 Gauge

Length, feet	5	5½	6
Width at Center, inches	6	6½	6¾
Weight each net about, lbs	5	6	7
Each	$2.75	3.00	3.25



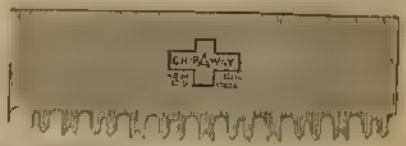
No. M131—CHIPAWAY*, Ir-Cut, Dexter Pattern Tooth, Wide Blade; 14x18 Gauge

Length, feet	6	6½	7
Width at Center, inches	6½	6¾	7
Weight each net about lbs.	6½	7	8
Each	$4.20	4.55	4.90



No. M133—CHIPAWAY*; Lance Tooth, Perforated, Wide Blade, 14x18 Gauge

Length, feet	5½	6	6½	7
Width at Center, inches	6½	6¾	6¾	7¼
Weight each net about, lbs.	5	6	7	8½
Each	$4.00	4.25	4.50	4.75



No. M135—CHIPAWAY*; Diamond Tooth, Wide Blade, 14x18 Gauge

Length, feet	5½	6
Width at Center, inches	6¼	6¾
Weight each net about, lbs.	6	7
Each	$3.00	3

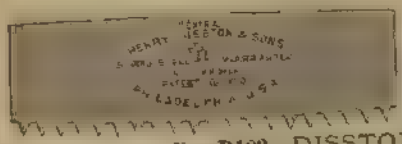
For Shipment, One to Six Wide Blade Saws, as Ordered, are Wired to a Board Weighing about

CROSS CUT SAWS.

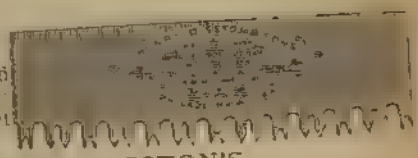
Without Handles.

If Handles are Wanted, Invariably Specify Separately for Them.

DISSTON, WIDE BLADE.



High Grade Crucible Steel Polished and Etched, Ground Gradually Thinner from Teeth to Back, Teeth Filed and Set Ready for Use.

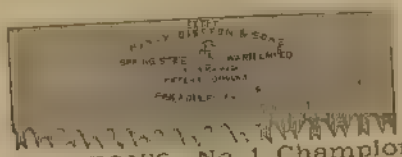


No. D103—DISSTON'S.
Plain or Peg Tooth No 2; 14x16 Gauge

Length, feet	4	4½	5	5½	6	6½
Width at Center, inches	6	6¼	6¾	7	7¼	7½
Wgt. each net about, lbs.	4	5	6	7	8	9
Each	$2.32	2.61	2.90	3.19	3.48	3.77

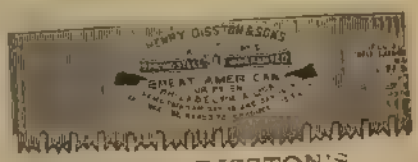
No. D104—DISSTON'S
Diamond Tooth, No. 1: 14x18 Gauge.

Length, feet	5	5½	6	6½	7
Width at Center, inches	6½	7	7¼	7½	7¾
Weight each net about, lbs.	5	6	7	8	9
Each	$3.40	3.74	4.08	4.42	4.76



No. D101—DISSTON'S No. 1, Champion Tooth; 14x18 Gauge.

Length, feet	5½	6	6½
Width at Center, inches	7¼	7½	7¼
Weight each net about, lbs.	6	7	8
Each	$3.30	3.60	3.90



No. D126—DISSTON'S
Great American Tooth, No. 1; 14x19 Gauge.

Length, feet	5	5½	6
Width at Center, inches	6¾	7	7¼
Weight each net about, lbs.	5½	6	7
Each	$3.40	3.74	4.08

No. D102—DISSTON'S No. 2 Champion Tooth; 14x16 Gauge

Length, feet	5	5½	6	6½	7
Width at Center, inches	7¾	7¾	7½	7¾	8
Weight each net about, lbs	6½	7	7½	8	9
Each	$2.70	2.97	3.24	3.51	3.78

No. D105—DISSTON'S. No. 1, Tuttle Tooth; 14x18 Gauge

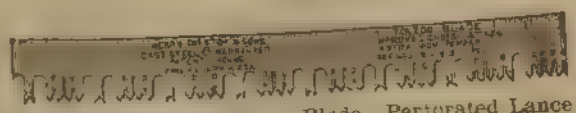
Length, feet	5	5½	6	6½
Width at Center, inches	6⅞	7	7¼	7½
Weight each net about, lbs.	5	6	7	8
Each	$3.00	3.30	3.60	3.90

DISSTON, NARROW BLADE.

No. D201—DISSTON'S, Triumph or Narrow Blade, Champion Tooth; 14 Gauge.

Length, feet	5	5½	6	6½	7
Width at Center, inches	3¼	3¼	3¼	3¼	3¼
Weight each net about, lbs	3½	4	4½	5	5½
Each	$1.75	1.93	2.10	2.28	2.45

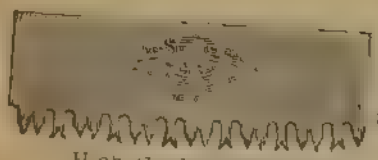
For Shipment, One to Six Wide Blade, or One to Twelve Narrow Blade Saws, as Ordered, are Wired to a Board Weighing about 7 lbs



No. D204—DISSTON'S; Triumph or Narrow Blade, Perforated Lance Tooth, 14 Gauge.

Length, feet	5	5½	6	6½
Width at Center, inches	3¾	3¾	3¾	3¾
Weight each net about, lbs.	3½	4	4½	5
Each	$2.50	2.75	3.00	3.25

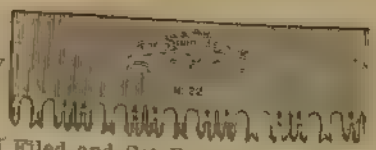
For Shipment, One to Six Wide Blade, or One to Twelve Narrow Blade Saws, as Ordered, are Wired to a Board Weighting about 7 lbs.



CROSS CUT SAWS.

Without Handles.

If Handles are Wanted, Invariably Specify Separately for Them.



SIMONDS', WIDE BLADE.

High Grade Crucible Steel Crescent Ground, Polished and Etched; Teeth Filed and Set Ready for Use.

No. SC129—SIMONDS'.

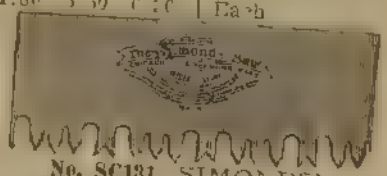
Champion Tooth; 14x19 Gauge.

Length, feet	5½	6	6½	7
Width at Center, Inches	6½	7¼	7¾	8
Weight each net about, lbs	6	7	8	9
Each	$4 10	4.80	5.50	6.30

No. SC130—SIMONDS'.

Lance Tooth, Perforated; 14x19 Gauge

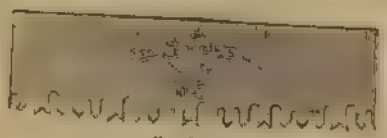
Length, feet	5½	6	6½	7
Width at Center, inches	6½	7¼	7¾	8
Weight each net about, lbs	6	7	8	9
Each	$4 10	4.80	5.50	6.30



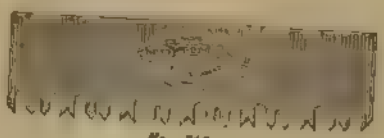
No. SC131—SIMONDS'.

Dexter Pattern Tooth; 14x19 Gauge.

Length, feet	5½	6	6½	7
Width at Center, inches	6½	7¼	7¾	8
Weight each net about, lbs	6	7	8	9
Each	$4 10	4 80	5.50	6.30



No. 333



No. 316.

‡SIMONDS', NARROW COTTONWOOD PATTERN.

High Grade Crucible Steel, Crescent Ground, Polished and Etched; Teeth Filed and Set Ready for Use.

‡No 333—SIMONDS', Dexter Tooth; 14x19 Gauge.

Length, feet	6	6½	7	7½	8
Width at Center, inches	6	6⅜	6⅝	7	7½
Weight each net about, lbs.	6½	7	7¾	9	10½
Each	$4.80	5.50	6.30	7.10	8.00

‡No. 316—SIMONDS', Diamond Tooth; 14x19 Gauge.

Length, feet	6	6½	7	7½	8
Width at Center, inches	6	6⅜	6⅝	7	7½
Weight each net about, lbs.	6½	7	7¾	9	10½
Each	$4.80	5.50	6.30	7.10	8.00

‡No. 324—SIMONDS', Perforated Lance Tooth; 14x19 Gauge.

Length, feet	6	6½	7	7½	8
Width at Center, inches	6	6⅜	6⅝	7	7½
Weight each net about, lbs	6½	7	7¾	9	10½
Each	$4.80	5.60	6.30	7.10	8.00

‡No. 326—SIMONDS' Champion Tooth; 14x19 Gauge.

Length, feet	6	6½	7	7½	8
Width at Center, inches	6	6⅜	6⅝	7	7½
Weight each net about, lbs.	6½	7	7¾	9	10½
Each	$4.80	5.50	6.30	7.10	8.00

For Shipment, One to Six Wide Blade, or One to Twelve Narrow Blade Saws, as ordered, are Wired to a Board or Strip Weighing about 7 lbs.

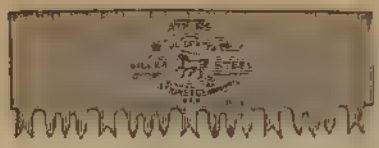
‡Goods marked thus (‡) are not carried in stock and can only be furnished by shipment direct from factory.

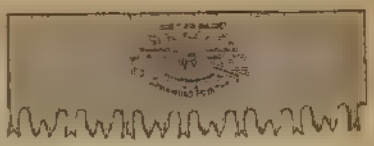
CROSS CUT SAWS.

WITHOUT HANDLES.
If Handles are Wanted, Invariably Specify Separately for Them

ATKINS'.

High Grade Crucible Steel, Polished and Etched, Ground Gradually Thinner from Teeth to Back; Teeth Filed and Set ready for use





Dexter Tooth, Wide Blade.

No. A113—ATKINS'.

Silver Steel, 14x18 Gauge.

Length, feet	6	6½	7
Width at Center, inches	7¼	7½	8
Weight each net about, lbs	7	8	9½
Each	$5.60	6.40	7.30

No. A114—ATKINS'; 14x18 Gauge

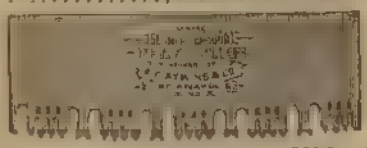
Length, feet	6	6½	7
Width at Center, inches	7	7½	8
Weight each net about, lbs.	8	9	10
Each	$4.56	4.94	5.32

No. A115—ATKINS', 14x18 Gauge

Length, feet	5½	6	6½	7
Width at Center, inches	6½	7½	8	8
Weight each net about, lbs	6	8	9	10
Each	$4.40	4.80	5.20	5.60

No. A123—ATKINS', 14x19 Gauge

Length, feet	5½	6	6½	7	7½
Width at Center, inches	6½	7	8	8¾	8¾
Wgt. each net about, lbs.	6	7	9	10	11
Each	$4.40	4.80	5.20	5.60	6.00



Lance Tooth, Perforated, Wide Blade

No. A124—ATKINS' VICTOR.

Special Steel; 14x18 Gauge.

Length, feet	5½	6	6½	7
Width at Center, inches	6	6¾	7	7¼
Weight each net about, lbs.	6	7	8	9½
Each	$2.85	4.20	4.55	4.90

No. A128—ATKINS' PERFECTION

Segment Ground; 14x19 Gauge.

Length, feet	5½	6	6½	7
Width at Center, inches	6¾	7¼	7½	7¾
Weight each net about, lbs.	5	6	8	9
Each	$4.45	5.10	5.70	6.40

Tuttle Tooth, Wide Blade

No. A116—ATKINS'; 14x16 Gauge.

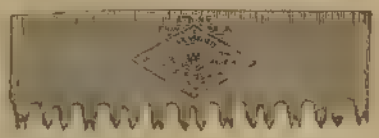
Length, feet	6	6½
Width at Center, inches	7	7½
Weight each net about, lbs	7½	8½
Each	$2.76	3.00

No. A117—ATKINS', 14x18 Gauge

Length, feet	5	5½	6	6½	7
Width at Center, inches	6¾	6¾	7	7½	8
Wgt. each net about, lbs.	5	6½	7½	8	9
Each	$2.50	2.76	3.00	3.26	3.50

No. A120—ATKINS'; 14x19 Gauge.

Length, feet	5½	6	6½	7
Width at Center, inches	6¾	7	7½	8
Weight each net about, lbs.	5	6	8	8½
Each	$2.26	2.50	3.76	4.04



Diamond Tooth, Wide Blade.

No. A129—ATKINS' LONE STAR, 14x18 Gauge.

Length, feet	5½	6	6½
Width at Center, Inches	7½	7¾	7¾
Weight each net about, lbs.	4½	6	7½
Each	$3.08	3.36	3.64

No. A118—ATKINS'; 14x16 Gauge.

Length, feet	5½	6	6½
Width at Center, Inches	6½	7¼	7¾
Weight each net about, lbs.	6½	7	8
Each	$2.86	3.12	3.38

No. A119—ATKINS'; 14x18 Gauge.

Length, feet	5½	6	6½
Width at Center, Inches	6½	7	7¾
Weight each net about, lbs	6	7	8
Each	$3.08	3.36	3.64

No. A207

NARROW BLADE.

No. A205—ATKINS', Tuttle Tooth; 14 Gauge.

Length, feet	5	5½	6	6½	7
Width at Center, inches	3¼	3¼	3¼	3¼	3¼
Wgt. each net about, lbs.	4	4½	5	5½	6
Each	$1.40	1.54	1.68	1.82	1.96

No. A207—ATKINS', Diamond Tooth; 14 Gauge.

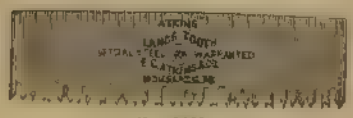
Length, feet	5	5½	6
Width at Center, inches	3¼	3¼	3¼
Weight each net about, lbs.	3½	4	4½
Each	$1.50	1.65	1.80

For Shipment, One to Six Wide Blade and One to Twelve Narrow Blade Saws as Ordered are Wired to a Board or Strip Weighing about 7 lbs.

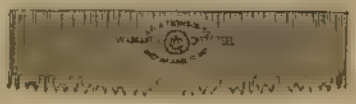
‡CROSS CUT SAWS.

WITHOUT HANDLES

If Handles are Wanted, Invariably Specify Separately for Them.



No. A130



No. A131.

‡ATKINS'.

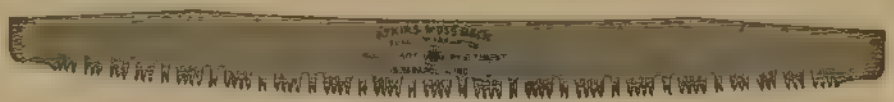
High Grade Crucible Steel, Polished and Etched; Wide Blade, Ground Gradually Thinner from Teeth to Back; Teeth Filed and Set ready for use.

‡No. A130—ATKINS', Lance Tooth, Not Perforated; 14x18 Gauge.

Length, feet	4	4½	5	5½	6	6½	7	7½	8
Width at Center, inches	5½	6⅛	6¼	6½	7	7½	8	8⅛	8¼
Weight each net about, lbs	5	5½	6	6½	7	8¼	10½	12½	14½
Each	$2.24	2.52	2.80	3.08	3.36	3.64	3.92	4.20	4.48

‡No. A131—ATKINS', Sheffield Tooth; 14x16 Gauge or 14x18 Gauge.

Length, feet	4	4½	5	5½	6	6½	7	7½	8
Width at Center, inches	5¼	5⅝	6¼	6½	7	7½	7⅞	8	8½
Weight each net about, lbs	5	5½	6	6½	7	8¼	10½	12½	14½
14x16 Gauge, each	$1.84	2.08	2.30	2.54	2.76	3.00	3.22	3.46	3.68
14x18 Gauge, each	$2.00	2.28	2.50	2.76	3.00	3.26	3.50	3.76	4.00



No. A138.

‡MOSS BACK Pattern; Wide Blade.

‡No. A138—ATKINS'. Columbian, Moss Back, Special Steel, Lance Tooth, NOT PERFORATED; 14x18 Gauge.

Length, feet	4	4½	5	5½	6	6½	7	7½	8
Width at Center, inches	5	5¼	5½	5¾	6¼	6½	6¾	7	7¼
Weight each net about, lbs	4	4½	5¼	6	7	8	9½	11	12½
Each	$2.64	2.97	3.30	3.63	3.96	4.29	4.62	4.95	5.28

‡No. A139—ATKINS'. Columbian, Moss Back, Special Steel, Lance Tooth, PERFORATED; 14x18 Gauge.

Length, feet	4	4½	5	5½	6	6½	7	7½	8
Width at Center, inches	5	5¼	5½	5¾	6¼	6½	6¾	7	7¼
Weight each net about, lbs	4	4½	5¼	6	7	8	9½	11	12½
Each	$2.80	3.15	3.50	3.85	4.20	4.55	4.90	5.25	5.60

‡No. A140—ATKINS'. Columbian; Moss Back, Special Steel, Tuttle Tooth, with Diamond Point, Perforated; 14x18 Gauge.

Length, feet	4	4½	5	5½	6	6½	7	7½	8
Width at Center, inches	5	5¼	5½	5¾	6¼	6½	6¾	7	7¼
Weight each net about, lbs	4	4½	5¼	6	7	8	9½	11	12½
Each	$2.80	3.15	3.50	3.85	4.20	4.55	4.90	5.25	5.60

‡No. A142—ATKINS', Rex Tooth, Special Steel, Segment Ground, 14x19 Gauge.

Length, feet	4	4½	5	5½	6	6½	7	7½	8
Width at Center inches	6¼	6⅝	6¾	6⅞	7	7⅛	7⅞	8	8¼
Weight each net about, lbs	5	5½	6	6½	7	9¼	10½	12½	14½
Each	$2.80	3.30	3.85	4.45	5.10	5.70	6.40	7.10	7.80

For ATKINS' Saws, 14x19 Gauge, advance list 50c each over 14x18 Gauge.

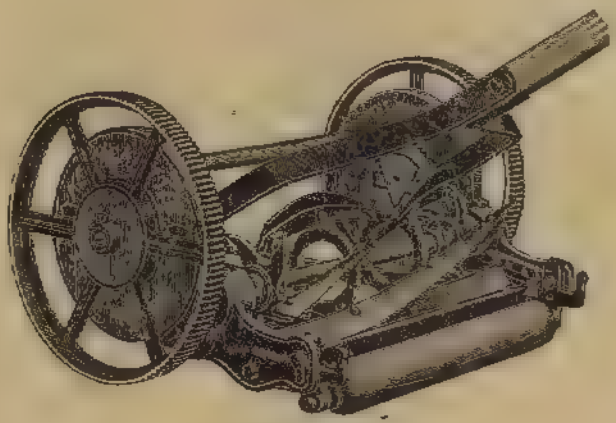
For Shipment, One to Six Wide Blade or Narrow Blade Saws, as ordered, are Wired to a Board or Strip Weighing about 7 lbs

‡Goods marked thus (‡) are not carried in stock and can only be furnished by shipment direct from factory.

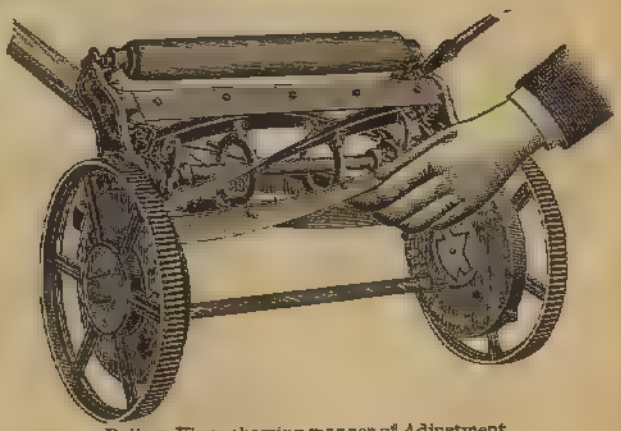
TRADE MARK
E. C. SIMMONS KEEN KUTTER,
REGISTERED.

LAWN MOWERS.

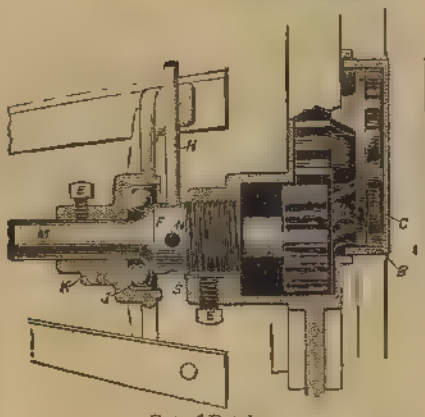
KEEN KUTTER*.



No. NTH14 Series.

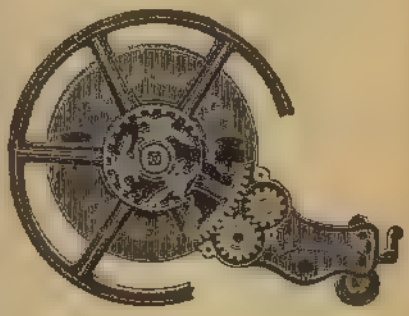


Bottom View, showing manner of Adjustment.



Cut of Ratchet.

BALL BEARING REEL—Accurate, Smooth-Running With Simple Adjustment.
TRIPLE-GEARED BOTH SIDES—Increasing Speed, Saving Power, giving greater Wheel Base.
FIVE REVOLVING KNIVES—Close and Continuous Cut.
LOWER ROCKING ADJUSTMENT—Convenient, Simple, Positive.
TRIPLE DRIVE WHEEL RATCHET—Never fails to act; Reversible.
ALL PARTS MECHANICALLY ACCURATE—Insuring Minimum wear and ease of running.



Triple Gearing.

KEEN KUTTER* TRIPLE GEAR, BALL BEARING.

Highest Grade Cast Side Frames, Spoke Pattern Braced Drive Wheels, Independent Full-closed Gear Casings and Bed Plate, all Thoroughly Braced and Reinforced. Five Highest Grade Crucible Steel Oil Tempered Revolving Knives and Adjustable Bed Knife, securely screwed to Bed Plate; Malleable Reel Braces and Adjustable Roller Brackets, with Hook Extensions for Grass Catcher; ⅝ inch Steel Ball Bearing Reel Axle and 11/16 inch Front Cross Bar; Triple Gearing on both sides with Hardened Gears; Independent Master Gear Wheel; Triple Reversible Ratchet in each Drive Wheel; Double Screw Adjustment for Cones and Ball Retainer to Compensate for Wear; Simple and Strong Rocking Adjustment for Lower Steel Bed Knife, worked from Lower side; Steel Handle Braces, Extra Varnished 3½ foot Clear White Maple Handle and Hardwood Roller; Patent Non-Loosening Clamp Attachment for Handle Bar; All Running Parts carefully Milled; Metal Parts Extra Finished, Painted Crimson and Gold.

KEEN KUTTER* TRIPLE GEAR, HIGH WHEEL.

Diameter of Drive Wheel 11 inches, Bearing on Drive Wheel Hub 2 1/16 inches. Adjustable to cut grass to a height of ¼ to 1¼ inches; will cut grass standing about 6 inches high.

Nos.	NTH14	NTH16	NTH18	NTH20	NTH22
Width of Cut, inches	14	16	18	20	22
Diameter of Reel, inches	6¼	6⅛	6⅛	6⅛	6⅛
Extreme Width, inches	19½	21½	22½	25½	27½
Weight each about, lbs.	55	59	62	65	69
Each	$24.00	27.00	30.00	33.00	36.00

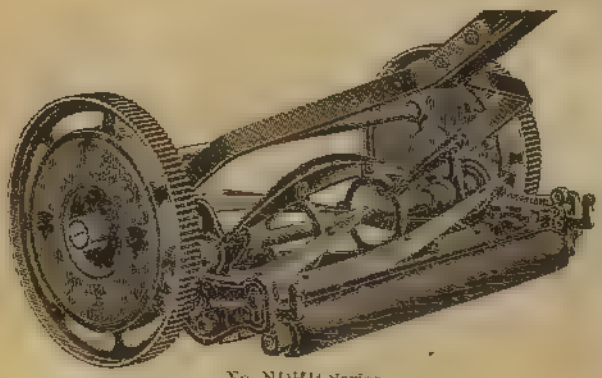
One in a Wood Box

Extra parts for Lawn Mowers not carried in Stock; Can only be furnished by being shipped direct from Factory.

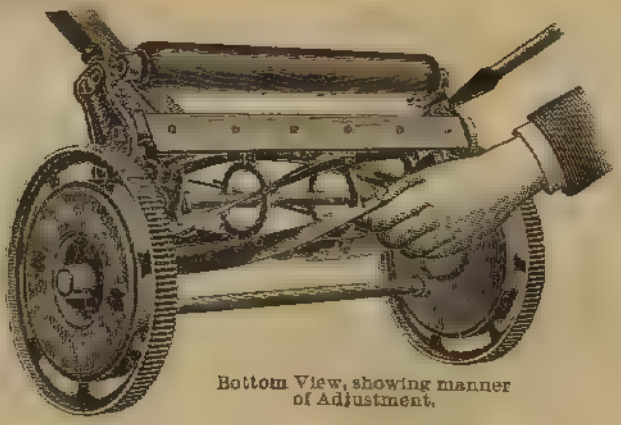
TRADE MARK:
E. C. SIMMONS' *KEEN KUTTER*,
REGISTERED.

LAWN MOWERS.

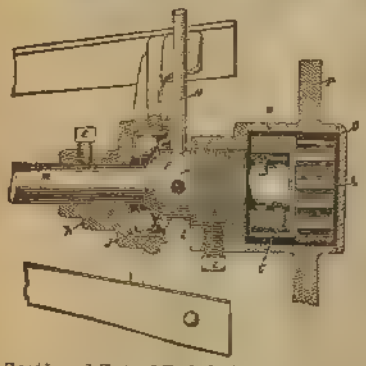
*KEEN KUTTER**



No. NDH14 Series.

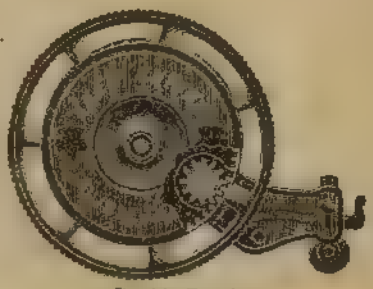


Bottom View, showing manner of Adjustment.



Sectional Cut of Ratchet and Bearings.

BALL BEARING REEL—Accurate, Smooth Running, with Simple Adjustment.
FIVE REVOLVING KNIVES ON HIGH WHEEL PATTERN—Close and Continuous Cut.
LOWER ROCKING ADJUSTMENT—Convenient, Simple, Positive.
STEEL PIN RATCHET—Never Fails to act; will not wear out.
STEEL BUSHED REEL COG—Large Bearing, Lessening Wear on Pinion and Axle.
ALL PARTS MECHANICALLY ACCURATE—Insuring Minimum Wear and Ease of Running.



Double Gearing.

*KEEN KUTTER** DOUBLE GEAR, BALL BEARING.

Highest Grade Cast Side Frames; Spoke Flange Raised Drive Wheels, Gear Casings and Bed Plate, all Thoroughly Braced and Reinforced, Highest Grade Crucible Steel Oil Tempered Revolving Knives and Adjustable Bed Knife, securely screwed to Bed Plate, Malleable Reel Braces and Adjustable Roller Brackets, with Hook Extension for Grass Catcher; Heavy Cast Drive Wheel Bearing and Steel Ball Bearing Reel Axle, Double Gearing on both sides with Steel Bushed Hardened Gear and Double Sliding Steel Pin Ratchet, Double Screw Adjustment for Cones and Ball Retainer to Compensate for Wear, Simple and Strong Rocking Adjustment for Lower Steel Bed Knife, worked from Lower Side; Steel Handle Braces; Extra Varnished 3½ foot Clear White Maple Handle and Hardwood Roller; Patent Non-Loosening Clamp Attachment for Handle Bar, All Running Parts carefully Milled; **Metal Parts Extra Finished, Painted Crimson and Gold Bronzed**

*KEEN KUTTER** DOUBLE GEAR, HIGH WHEEL.

With Five Reel Knives; Diameter of Drive Wheel 11 inches; Front Bar $^{11}/_{16}$ inch; Reel Axle ⅝ inch; Bearing on Drive Wheel Hub $2^{1}/_{16}$ inches. Adjustable to cut grass to a height of ¼ to 1 inch; will cut grass standing about 7 inches high.

Nos.	NDH14	NDH16	NDH18	NDH20
Width of Cut, inches	14	16	18	20
Diameter of Reel, inches	7	7	7	7
Extreme Width, inches	19¾	21¾	23¾	25¾
Weight each about, lbs	52	56	59	62
Each	$21 00	24.00	27.00	30.00

*KEEN KUTTER** DOUBLE GEAR, LOW WHEEL.

With Four Reel Knives; Diameter of Drive Wheel 8½ inches, Front Bar $^{11}/_{16}$ inch; Reel Axle ⅝ inch; Bearing on Drive Wheel Hub $2^{1}/_{16}$ inches. Adjustable to cut grass to a height of ¼ to 1 inch; will cut grass standing about 5½ inches high.

Nos.	NDL12	NDL14	NDL16	NDL18
Width of Cut, inches	12	14	16	18
Diameter of Reel, inches	5½	5½	5½	5½
Extreme Width, inches	17¾	19¾	21¾	23¾
Weight each about, lbs	43	45	48	50
Each	$16.00	19.00	22.00	25.00

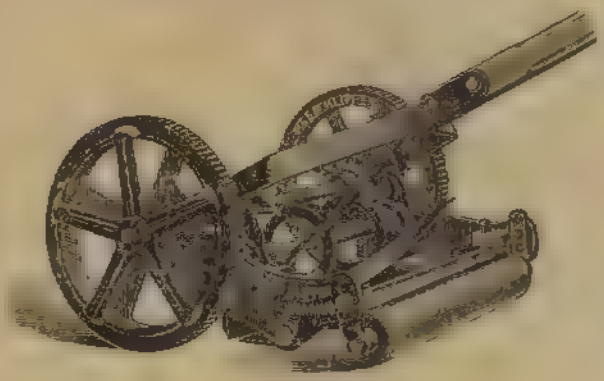
One in a Wood Box.

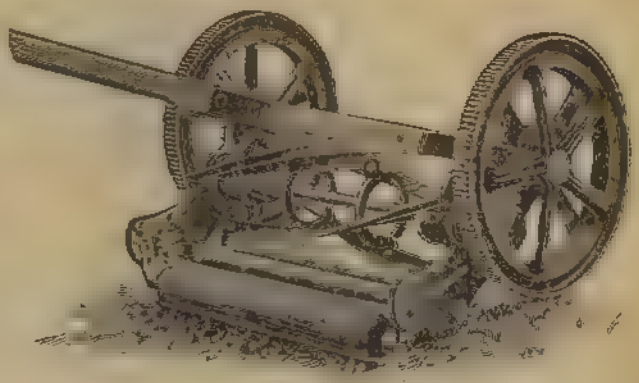
Extra Parts for Lawn Mowers not carried in Stock; Can only be furnished by being shipped direct from Factory.

TRADE MARK: "KEEN KLIPPER," REGISTERED.

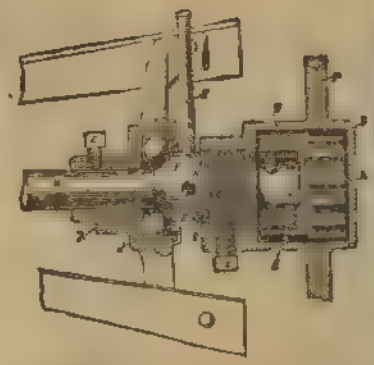
LAWN MOWERS.

Direct Gearing Insures Fast Revolution of Reel and Smooth Quick Cut.

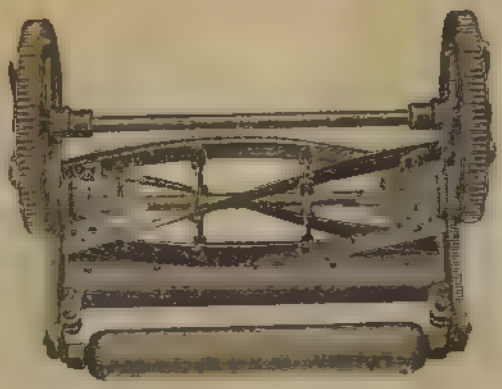




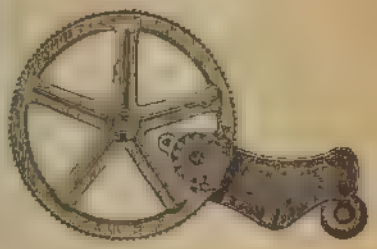
High Wheel



Sectional Cut of Ratchet and Bearings.



Showing Application of Ball Bearings.



Showing Double Gearing.

KEEN KLIPPER*; BALL BEARING.

High Grade Cast Side Frames, Spoke Pattern Drive Wheels, Gear Casings and Bed Plate; Four Tempered Crucible Steel Revolving Cutter Blades; Steel Cross Bar; Solid Axle; Open Reel; Adjustable Reinforced Cutter Bar; Steel Cones; Double Gearing on Both Sides; Double Steel Pin Ratchets; Adjustable Hardwood Roller; Wrought Iron Handle Braces, and 3½ foot Hardwood Varnished Handle; Entire Mower Handsomely Finished in Blue and Gold.

KEEN KLIPPER*, DOUBLE GEAR, LOW WHEEL.

Diameter of Drive Wheel 8½ inches; Front Axle ⅝ inch; Reel Axle ⅝ inch; Axle has 1¾ inch Bearing on Drive Wheel Hub; Adjustable to cut grass to height ½ to 1¼ inches.

Nos	KL12	KL14	KL16	KL18
Width of Cut, inches	12	14	16	18
Diameter of Reel, inches	5½	5½	5½	5½
Extreme Width, inches	16½	18½	20½	22½
Weight each about, lbs.	45	47	50	52
Each	$15.00	17.00	19.00	21.00

KEEN KLIPPER*, DOUBLE GEAR, HIGH WHEEL.

Diameter of Drive Wheel 11 inches; Front Axle 11/16 inch; Reel Axle ⅝ inch, Axle has 1¾ inch Bearing on Drive Wheel Hub; Adjustable to cut grass to height ½ to 1¼ inches.

Nos	KH14	KH16	KH18	KH20
Width of Cut, inches	14	16	18	20
Diameter of Reel, inches	6¼	6¼	6¼	6¼
Extreme Width, inches	18½	20½	22½	24½
Weight each about, lbs.	55	59	62	63
Each	$20.00	22.00	24.00	26.00

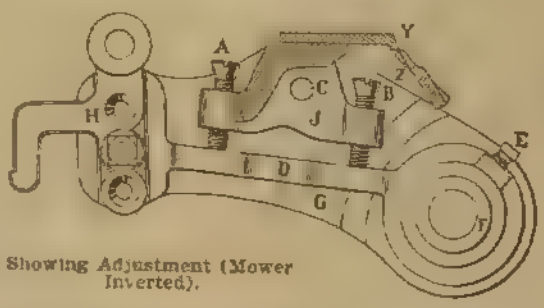
One in a Wood Box.

Extra Parts for Lawn Mowers are not carried in Stock; Can only be furnished by being shipped direct from Factory

THE CARE AND ADJUSTMENT OF THE *KEEN KUTTER* * LAWN MOWER.

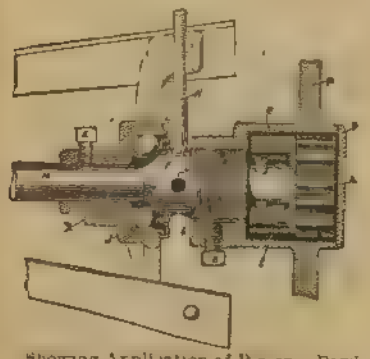
EVERY MOWER IS PERFECTLY ADJUSTED when it leaves our factory and no adjustment should be necessary for a long time except that the jars they sometimes receive in transportation (often falling out of freight cars) have a tendency to alter the adjustment. Long continued use may also render adjustment necessary. Don't meddle with any screws whatever, unless in use, you find it necessary. It is especially important that screw C (Fig. 1), which holds the frame work together, shall not be touched, except to tighten it, if it becomes loose. If the Mower has been put out of adjustment, proceed exactly as indicated in the following instructions.

ADJUSTMENT OF KNIVES.—The cutting action of a Lawn Mower is the same as that of a pair of grass shears; it accomplishes this work by means of a stationary blade Y, (Fig. 1), and a reel or cylinder with knives on its periphery, a section of one of these knives being shown at Z, (Fig. 1). When a Lawn Mower is in perfect condition, each of these reel knives (Z), should lightly touch the lower blade (Y), at all points throughout its length. If these blades are too far apart, they will not cut. If too close together, the Mower will run hard, and knife (Y) will soon be damaged. If contact between blades Y and Z is not perfect throughout their entire length, the blades will become more worn at one part than another, and it will then be impossible to adjust them for proper cutting, without regrinding. To adjust the knives, invert the mower as in Fig. 1. Turn the reel and **observe each blade as it passes blade Y to ascertain where the blades require adjusting.**



Showing Adjustment (Mower Inverted).

To bring blade Y closer to knife Z, slightly loosen screw B and correspondingly tighten screw A, TAKING CARE TO HAVE BOTH SCREWS TIGHT when blade Y is in proper contact with reel blades Z (they should gently touch). If blades are too tight loosen screw A and tighten B. The adjustment may be verified by testing the **knives with paper or grass at various points, turning the reel by hand.**


Showing Application of Pinions, Pawls, and Bearings on Double Gear.

ADJUSTING THE BEARINGS.—After much use, the slight wear in the Bearings should be compensated for by the following adjustment: Place the Mower upside down, with the adjusting cone shown in Fig 2, to your right. Loosen screw E, (Fig. 2), insert pin H in hole N of the cone F, and turn it slightly from you with one hand while moving the reel in its bearings, to determine just when the cone is close enough to the balls. It should just touch, so that the reel shall run freely unless checked by contact with the blade Y. When adjusting the Ball Bearings, it is safer for an inexperienced **person to first set the blades Y and Z (Fig. 1) slightly apart, and after the Bearings are adjusted, re-adjusting the blades as instructed above. BE SURE AND LEAVE SET SCREW E PERFECTLY TIGHT AFTER THE BEARINGS ARE ADJUSTED.**

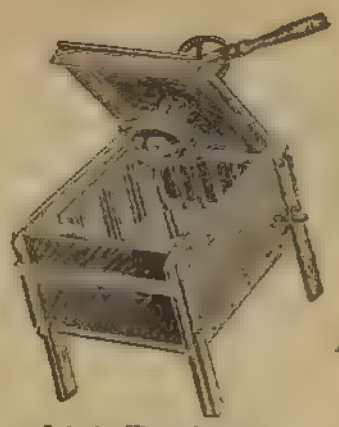
OILING THE MOWER.—Oil the drive wheels, roller brackets, etc., every half hour, through the holes provided, using a good oil which will not gum. To oil the bearings of the reel place the Mower on its side and pour the oil in on the balls around cone F, (Fig. 2). Every once in a while a liberal quantity of kerosene (coal oil) should be applied, to remove the gummy residue of oil from former operations. After this **has been done, the Mower should be oiled thoroughly with good lubricating oil.**

ADJUSTING FOR CUTTING GRASS, LONG OR SHORT.—Raise the bracket H, (Fig. 1), to cut longer, lower it to cut shorter.

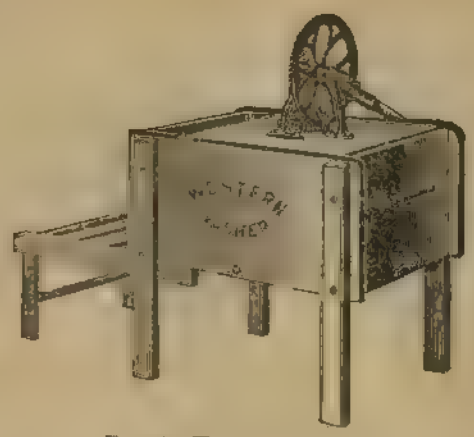
SHARPENING.—When the Mower is quite dull it is best to send it to an experienced mower sharpener. It may, however, be sharpened as follows: Support the Mower with a box or block under the front axle, the roller resting on the floor or bench. Replace the pinion of the left side with the pinion of the right side leaving the pawls C D in place. Then insert pin H through the hole in the large wheel thus making a crank to turn the wheel. Put a thin paste of fine emery and oil on the lower blade after adjusting it a little close to the reel knives and then turn the wheel so as to cause the reel to run backwards until the knives are sharp, when the lower blade must be set properly again, the oil and emery wiped off and pinions returned to their proper places. When the lower blade becomes dull it may be sharpened by removing it and grinding the front bevel on a true stone (DO NOT TOUCH **THE TOP PART OF THE BLADE), then replace and adjust.**

GENERAL CARE.—After you are through using the Mower, each time rub some vaseline or other grease on the blades and keep the Mower under cover as much as possible when not in use. A little care and prevention against rust will be well repaid in the better work which the machine will do for you.

WASHERS.



Interior View of Nos. 2 and 8.



Exterior View of Nos. 2 and 8.

WESTERN PATTERN.

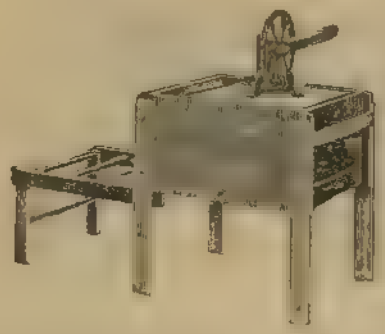
WESTERN PATTERN; Cypress Wood, Mortised, Red Stained and Varnished; Bottom and Insides Corrugated; Wood Pin Wheel; Castings Black Japanned; Legs 2½x13 inches Secured by Bolts which extend Entire Width of Box; Fly Wheel 10 inches in Diameter, with 17 inch Handle; Two 1¾x21 inch Wood Handles on Ends Sunken Wood Wringer Box.

Per Dozen

No. 2—SIZE OF BOX 20x25 INCHES, Size of Tub, Inside, 18x23½ inches, Size of Sliding Rack 20x14 inches Height over all 26 inches; Spread 53x24 inches; Weight per dozen about 768 lbs... .....$72.00

No. 3—SIZE OF BOX 21x27 INCHES Size of Tub, Inside 19½x25½ inches; Size of Sliding Rack 20x14 inches, Height over all 29 inches, Spread 55x25 inches, Weight per dozen about 8[illegible] lbs $4.00

One-sixth Dozen in a Crate.



COLUMBIA.

Per Dozen

No. 15—COLUMBIA; Cypress Wood; Mortised; Mahogany Stained, Varnished and Black Decorated; Bottom Corrugated; Strips on Sides form Side Corrugation; Improved Post and Pin Wheel, Malleable Iron; Wrought Iron Castings Galvanized Aluminum Finish Ash Legs 4½x14 inches Secured by Bolts, which extend Entire Width of Box Fly Wheel [illegible] inches in Diameter, with 17 inch Ash Handle; Sunken Wood Wringer Box; Coil Spring on Upper Part of Post gives Pressure according to amount of clothes in Machine; Size of Box 21x23½ inches; Size of Tub, Inside, 18½x21½ inches Size of Sliding Tub Rack 21x25 inches; Extreme Height 27 inches; Spread 54x24 inches; Weight per dozen about 744 lbs..$80.00

One-sixth Dozen in a Crate.

GOOD LUCK.

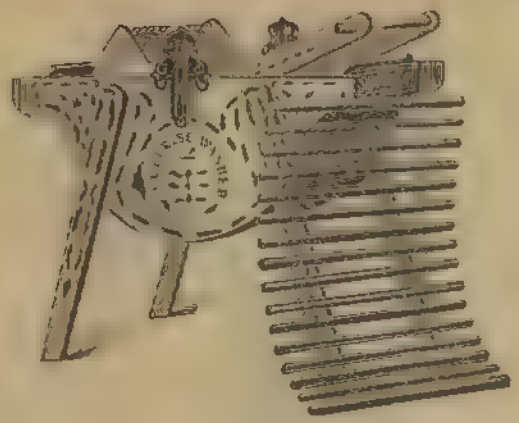
Per Dozen

No. 8—GOOD LUCK Cypress Wood Red Stained and Varnished, Galvanized Iron Bottom, Painted Black on Outside, Removable Corrugated Wood Bottom Rubber; All Castings, Black Japanned; Plain Wood Handle; Height of Handle 17 inches Wringer 14 inches; SIZE OF TUB, INSIDE 23x19x14 INCHES, Height over all 40 inches; Legs 16x2½ inches, Nailed; Spread 28x24 inches, Adjustable Pressure according to amount of clothes in Machine; Weight per dozen about 528 lbs.....$72.00

One-twelfth Dozen in a Crate.

NOTE—In Ordering Repair Parts for Washers, be sure to Give the Name of the Manufacturer, the Number of the Machine, the Number on the Castings or Full Description of the Wooden Part wanted

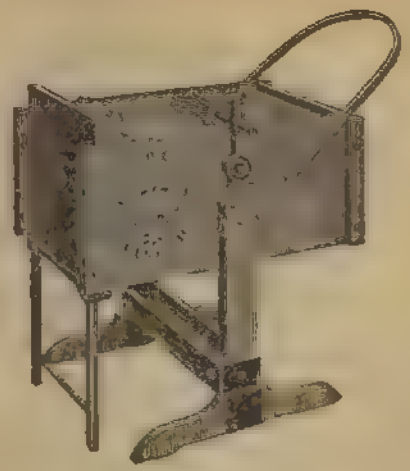
‡WASHERS.



‡SURPRISE

Per Dozen

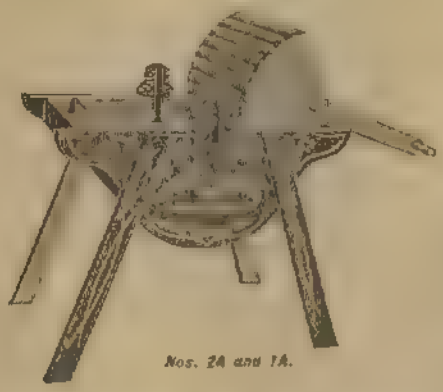
‡No. 28—SURPRISE; Gum Wood; Painted Vermilion: Legs and Handle, Light Green Decorated, Mortised; Galvanized Iron Bottom; Painted Black on Outside. Removable Corrugated Wood Bottom Rubber; All Castings Painted Black; Plain Hardwood Handle; Size of Tub Inside, 28½x19x14 inches; Height over all 40 inches; Legs Nailed; Spread 23x35 inches; Adjustable Pressure, according to amount of clothes in Machine; Weight per dozen about 525 lbs... ...$72.00



‡BALL BEARING COMBINATION.

Per Dozen

‡No. 6—Ball Bearing Combination; Cypress Wood; Mahogany Stained and Varnished; Wood Pin Wheel; Castings, Gold Bronze Finish; Corrugated Inside; Size of Tub Inside, 15½x25½x10½ inches; Height over all 36 inches; Spread 53x24 inches; Weight per dozen about 920 lbs $105 00



Nos. 2A and 1A.

Advance; Red Gum Wood; Painted Red and Varnished. Yellow Striped; Galvanized Iron Bottom. Japanned on Outside; Corrugated Mortised Hardwood Rubbing Surface; Removable Corrugated Wood Bottom Rubber; Hardwood Wringer Box; Plain Hardwood Handle; 2½ inch Legs Nailed to Body.

‡ADVANCE, WITH EAR MOVEMENT.

Japanned Cast Iron Ears.

Per Dozen

‡No. 1A—ADVANCE; Large Size; Size of Tub, Inside 28½x19x13 inches; Height to Top of Tub 27 inches; Height over all 42 inches; Spread of Legs 21x34 inches; Weight per dozen about 600 lbs . .$42.00

‡No. 2A—ADVANCE; Small Size. Size of Tub Inside 27x19x13 inches; Height to Top of Tub 24 inches; Height over all 39 inches Spread of Legs 31x21 inches; Weight per dozen about 575 lbs 36.00

‡ADVANCE, WITH BAIL MOVEMENT.

Galvanized Steel Bail.

Per Dozen

‡No. 3A—ADVANCE; Bail Movement; Size of Tub, Inside, 28½x19x13 inches; Height to Top of Tub 27 inches; Height over all 42 inches; Spread of Legs 34x21½ inches; Weight per dozen about 600 lbs $48 00

One-twelfth Dozen in a Crate.

Note When Description of Washing Machines gives more than one Finish, Different Styles of Pin Wheels or Different Finishes of Castings, always Specify what is wanted

Note—In Ordering Repair Parts for Washers be sure to give the name of the Manufacturer the Number of the Machine the number on the Castings or Full Description of the Wooden Part wanted.

‡Goods marked thus (‡) are not carried in stock and can only be furnished by shipment direct from factory.

WASHERS.

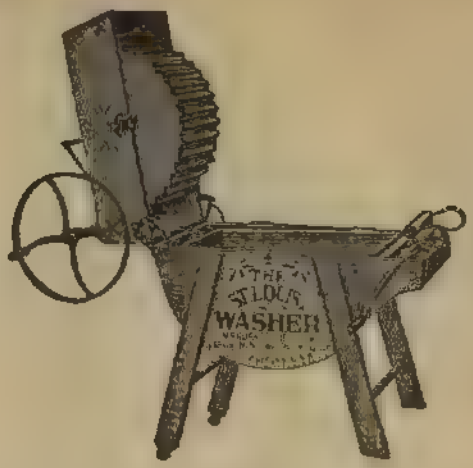
GLOBE.

GLOBE; Cypress Wood; Oak Stained and Varnished; Galvanized Iron Bottom; Outside Castings, Black Japanned, Inside Castings, Galvanized; Legs 2½x17 inches, Bolted. Two having Casters; Diameter of Fly Wheel 16 inches, Black Japanned, with Plain Wood Handle, Bolted; Rim arranged for attaching Wringer; Double Action produced by the working of Two Cylinders in Opposite Directions at the same time.

Per Dozen

No. 36— Factory No. 1); Size of Tub, Inside, 16¼x27x13½ inches; Height over all 32 inches; Spread 26x24 inches; Weight per dozen about 1080 lbs.....$96.00

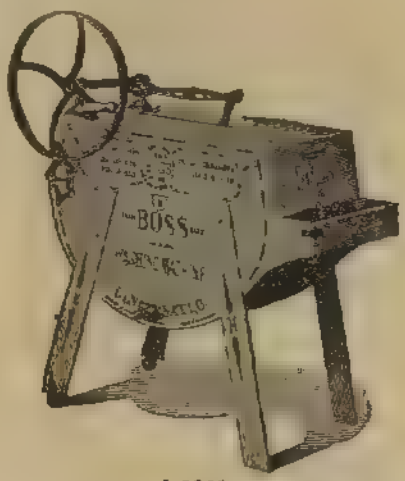
‡*No. 37—GLOBE; (Factory No. 2); Size of Tub, Inside, 18¼x28x13½ inches; Height over all 32 inches; Spread 27x25 inches; Weight per dozen about 1140 lbs.....108.00*



‡*ST. LOUIS.*

Per Dozen

‡*No. 41—ST. LOUIS, Cypress Wood, Natural Finish and Varnished; Galvanized Iron Bottom, Painted Black on Outside; Castings Gold Bronze Finish; Rubbers Corrugated; Size of Lower Rubber, Inside, 11¾x24¼ inches; Height over all 44 inches; Spread 19x34½ inches; Diameter of Fly Wheel 17 inches; Weight per dozen about 1050 lbs.....$110.00*



‡*BOSS.*

Gum Wood· Natural Finished and Varnished; Wood Frame Cylinder, Double Action, produced by the working of Two Cylinders in Opposite Directions at the same time; Galvanized Iron Bottoms, Rim arranged for attaching Wringer, Diameter of Wheel 17 inches.

Per Dozen

‡*No. 33 BOSS (Factory No. 1): Size of Tub, Inside, 17x29x14 inches; Height to Top of Tub 31 inches; Weight per dozen about 1150 lbs.....$ 98.00*

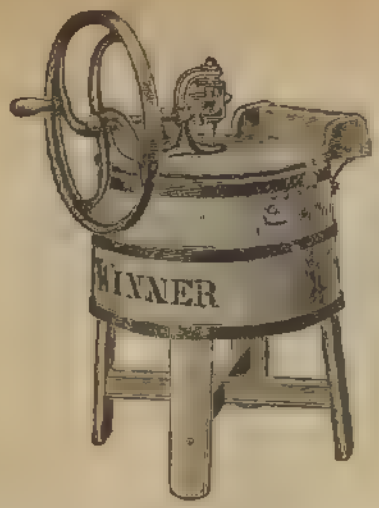
‡*No. 34—BOSS (Factory No. 2); Large Size; Size of Tub, Inside, 18x30½x15 inches; Height to Top of Tub 33 inches, Weight per dozen about 1200 lbs.....108.00*

NOTE —In Ordering Repair Parts for Washers, be sure to Give the Name of the Manufacturer, the Number of the Machine, the Number of the Castings or Full Description of the Wooden Part Wanted.

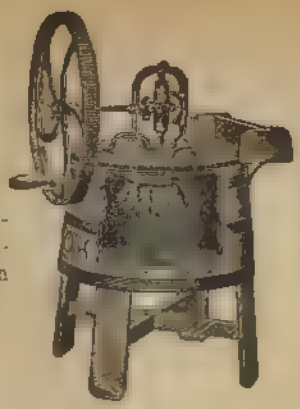
One-twelfth Dozen in a Crate.

‡*Goods marked thus (‡) are not carried in stock, and can only be furnished by shipment direct from factory.*

WASHERS.



Natural Finish and Varnished; Corrugated Wood Inside and Bottom; Wood Pin Wheel.



O. K. ROTARY.

Per Dozen

No. 85—O. K. ROTARY; Ball Bearing; Cypress Wood; Hoops and Castings Gold and Copper Bronzed Finish; ⅞ inch Steel Hoops; 2½x24 inch Wood Braces on Legs; Legs 4½x 13 inches, Formed from Staves; Fly Wheel 19 inches in Diameter Painted Green with Black Enamel Wood Handle Bolted; Wood Wringer Box Fastened with Black Japanned Steel Brackets, Two Malleable Iron Carrying Handles Bolted Size of Tub, Inside [illegible] inches; Height over all 79 inches, Spread of Legs 30x30 inches; Weight per dozen about 1020 lbs $96.00

WINNER ROTARY.

Per Dozen

No. 16—WINNER ROTARY, Cypress Wood Gold Bronzed Castings, Wood Legs Securely Bolted and Braced; Hinged Wood Cover, 19 inch Cast Fly Wheel Painted Green Wood Wringer Box. Size of Tub Inside, 26½x23 inches Height over all 42 inches; Spread of Legs 25½ inches, Weight per dozen about 1020 lbs $96.00

One-twelfth Dozen in a Crate

By making frequent calls on our Mail Order Department, you will be able to keep your stock complete and up-to-date and hold your trade at home.

HORTON'S GALVANIZED ROTARY.

Per Dozen

No. 11—HORTON'S GALVANIZED ROTARY 20 Gauge Galvanized Steel Tub Corrugated, All Joints Double Seamed, Upper Edge Wired, Castings Aluminum Finish, Oak Legs, Secured in place by Galvanized Bolt and Galvanized Steel Socket Size 26x4½ inches, Diameter of Fly Wheel 19 inches Painted Green with Polished Wood Handle Steam Galvanized Wringer Box, Cypress Lid, Natural Finished and Varnished Wood Pin Wheel, Stamped Steel Carrying Handles, Riveted Size of Tub Inside, 23½x10½ inches, Height over all 38 inches Spread of Legs 24x24 inches, Weight per dozen about 840 lbs. $120.00

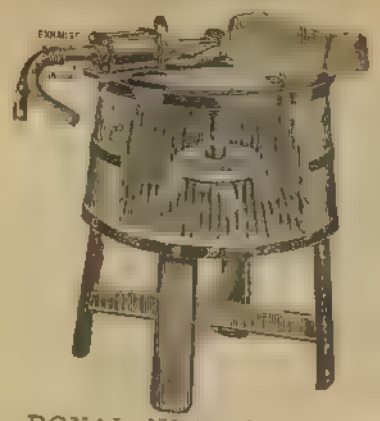
One-twelfth Dozen in a Crate; Knocked Down.

NOTE In Ordering Repair Parts for Washers be sure to Give the Name of the Manufacturer, the Number of the Machine, the Number on the Castings or Full Description of the Wooden Part wanted.

WASHERS.

Must Have 35 Pounds Wate Pressure to Operate the Machine.

Cannot be Returned when Once Used, Except in Cases of Defective Material



[illegible] Royal Water Motor attached to the Machine will do the work without the aid of any Hand Power whatever; All that is required is to place the Clothes [illegible] one with plenty of Hot W[illegible] turn on the Faucet and leave it alone.

Base of the Motor is made of Solid Cast Iron, Painted Green; Cylinder and the Ends are made of Solid Brass The Water Enters the Intake Pipe, which forces the Propeller backward and forward; Does not require any Hot Water to operate the Motor.

ROYAL—Water Motor

Complete with ¾ inch 3-ply Rubber Intake Hose 36 inches Long with ¾ inch Brass Coupling; also One Piece of ¾ inch 3-ply Rubbe Discharge Hose 36 inches Long; Size of Cylinder 3½ inches Diameter, with Cast Iron Geared Propelling Piston; Length of Motor over all 18 inches.

No. 26—ROYAL MOTOR WASHER, Cypress Wood, Heavy Steel Hoops, Painted Green; Wood Legs, securely Bolted and Braced; Hinged Wood Cover, with Malleable Iron Latch; Malleable Iron Lifting Handles; All Metal Parts Painted Green; Wood Wringer Box, Size of Tub, Inside, 12¾x20¾x[illegible] inches; Height over all 43 inches; Spread of Legs 25½ inches; Weight each about [illegible] lbs. ..... Each $20.00

Each Machine Securely Crated and Wrapped

Cut Shows Interior View.

PRIDE

Made of Carefully Selected and Thoroughly Kiln Dried Red Cypress, Natural Finish, Varnished; Interior, Sides and Bottom Corrugated, Fitted with 2 Heavy Japanned Cast Steel Coil Springs at Bottom of Tub, which Swing the Tub Back and Forth by a Slight Pull on the Handle; 1¼x[illegible] inch Natural Finish Hardwood Tripod Legs.

Pivot Post in Center of Tub Revolves in the Opposite Direction from that of the Tub; This Pivot Carries the Perforated and Cleated Scrubbing Board, which Rests Closely Down on the Clothes.

The Oscillating Movement of the Tub moving in the Opposite Direction to that of the Circular Scrubbing Board, causes a Rapid Agitation of the Water and the Clothes against the Corrugated Rubbing Surface of the Tub and the Scrubbing Board.

Tub fitted with Three Heavy Steel Hoops, Cleated Cover with Malleable Iron [illegible] All Metal Parts Painted Green, All Inner Parts coming in contact with the Clothes are [illegible] Galvanized.

No. 20—PRIDE; Size of Tub, Inside 12¾x20¾x23 inches; Height over all 31½ inches; Spread of Base 29 inches; Weight per dozen about 7[illegible] lbs. ..... Per Dozen .. $100.00

One-twelfth Dozen in a Crate; Each Machine Securely Wrapped with Cardboard.

‡WASHERS.

Kiln-Dried Louisiana Red Cypress Wood; Rosewood Finish and Varnished; Corrugated Inside, Sides and Bottom; Reinforced Hardwood Pin Wheel; 4¾ inch Solid Stave Legs, with 2½ inch Wood Cross Braces, 1¼ inch Steel Hoops; Hinged Wood Cover; 19¼ inch Diameter Cast Fly Wheel, with Plain Wood Handle; Wood Wringer Box, Supported with two Cast Iron Brackets; Malleable Iron Carrying Handles.

‡BB ROTARY

Per Dozen

‡No. 45—BB ROTARY Roller Gearing. Size of Tub Inside 2[illegible] x 12¼ inches Height over all 3[illegible] inches Spread of Legs 26[illegible] inches All Metal Parts Finished in Aluminum Bronze Weight per dozen about 950 lbs . $108.00

‡SCHROEDER ROTARY.

Per Dozen

‡No. 46—SCHROEDER ROTARY; Tooth Gear; Size of Tub, Inside, 21½x12¼ inches; Height over all 87¾ inches; Spread of Legs 26¼ inches; All Metal Parts Finished in Aluminum Bronze; Weight per dozen about 978 lbs. $108.00

‡HORTON'S ROTARY.

Cypress Wood, Natural Finish and Varnished; Corrugated Inside Wood Pin Wheel 2½ inch Wood Legs, securely Bolted on Heavy Steel Hoops, Hinged Wood Cover, with Stamped Steel Handle; Cast Iron Fly Wheel 15[illegible] inches Diameter, Painted Green, with Plain Wood Handle; Wood Wringer Box; Stamped Steel Lifting Handles, securely Bolted.

Per Dozen

‡No. 31 HORTON'S ROTARY: Fitted with Horton's Patent Double Gear Rotary Movement, Size of Tub, Inside, 22½x10 inches Height over all 39 inches; Spread of Legs 29 inches Castings, Gold Bronzed; Weight per dozen about 950 lbs . . . $96.00

Wood Pin Wheel; Castings, Gold Bronzed Finish; Fitted with Two Heavy Japanned Steel Coil Springs at Bottom of Tub which Swing the Tub Back and Forth by a Slight Pull on the Handle; Corrugated Inside, Sides and Bottom Size of Tub, Inside, 13¾x21 inches; Height over all 34 inches; Spread 29x29 inches.

‡EAGLE BALL BEARING ROTARY.

Per Dozen

‡No. 1[illegible] EAGLE BALL BEARING ROTARY Cypress Wood, Mahogany Stained and Varnished, Weight per dozen about 900 lbs . $100.00

‡Improved Wayne American

‡IMPROVED WAYNE AMERICAN.

Per Dozen

‡No. [illegible]—IMPROVED WAYNE AMERICAN Cypress Wood Mahogany Stained and Varnished. Wood Pin Wheel Castings Gold Bronze Finish, Corrugated Inside, Sides and Bottom Size of Tub Inside, 22[illegible]x[illegible] inches Height over all 42 inches Detachable Legs Spread 29x29 inches Diameter of Gear Wheel 12½ inches; Weight per dozen about 530 lbs . . . $75.00

NOTE—In Ordering Repair Parts for Washers be sure to give the Name of the Manufacturer, the Number of the Machine, the Number on the Castings, or Full Description of the Wooden Part wanted.

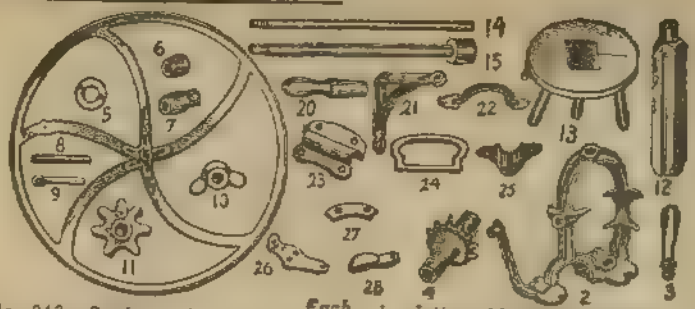
One-twelfth Dozen in a Crate.

‡Goods marked thus (‡) are not carried in stock and can only be furnished by shipment direct from the factory.

WASHER SUNDRIES.

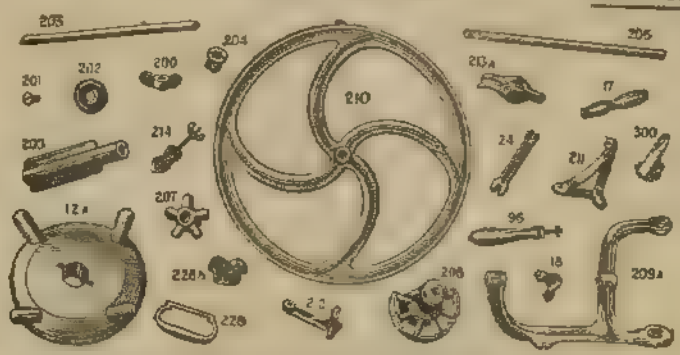
	Each
No. 1—Fly Wheel	$1 00
No. 2—Frame, 9 inches High, 1 inch Hole	.75
No. 102—Frame, 7½ inches High, 1 inch Hole	.75
No. 202—Frame, 7½ inches High, ¾ inch Hole	.75
‡No. 3—Wheel Handle	.20
No. 4—Double Gear; 5½ inches High; 1 in. Hole	.60
No. 104—Double Gear; 3½ inches High; 1 in. Hole	.60
No. 204—Double Gear; 3½ in. High, ¾ in Hole	.60
‡No. 5—Iron Washer	.05
‡No. 6—Small Roller Ball	.10
‡No 7—Long Roller Ball	.15
‡No. 8—Steel Pin	.05
‡No. 9—Spring Cotter	.05
‡No. 10—Thumb Nut	.10
No. 11 Pinion	.10
‡No. 12—Wooden Post	.25
No. 13—Dasher, for Wood Post	.40

‡REPAIRS FOR No. 35 WASHERS.



	Each
‡No 213—Dasher, for Galvanized Post	$0.40
No. 14—Steel Shaft, ⅝x12 inches	.30
‡No. 15—Plunger, 12 inches Long, 1 inch Diameter	.30
No. 115—Plunger, 10 inches Long; 1 inch Diameter	.30
‡No. 215—Plunger, 15¾ inches Long, ¾ inch Diameter	.30

	Each
‡No. 20—Water Plug	$0.05
‡No 21—Wringer Box Bracket (sets of 2)	.25
‡No 22—Lifting Handle	.05
‡No. 23—Handle Plate	.10
‡No. 24—Iron Handle	.10
‡No. 25—Spout	.10
‡No 26 Lower Part of Clamp,	.05
‡No 27 Upper Part of Clamp,	.05
‡No. 28—Clamp Fastener	.10
‡No. 29—Lid Rest	.10

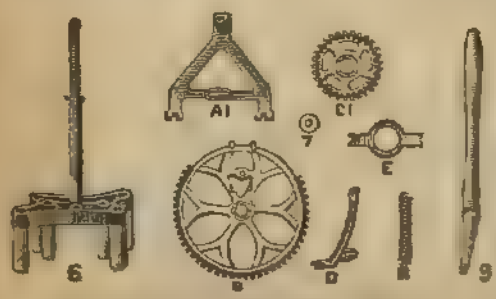


‡REPAIRS FOR No. 16 WINNER WASHERS.

	Each
‡No 12A—Pin Wheel	$0.30
‡No 17 - Plug	10
‡No. 18 Spout	.10
‡No 24 - Wrench	.15
‡No 96 Handle and Bolt	.10
‡No 200- Thumb Nut	.10
‡No 201 Screw	10
‡No. 202—Collar	.10

	Each
‡No 203 Paddle	$0.25
‡No 204 Bushing	10
‡No 205 -Square Shaft	.20
‡No. 206 Round Shaft	.25
‡No. 207 Pinion	.25
‡No 208 Double Gear	75
‡No 209A —Stand	1 00
‡No. 210—Wheel	1.00

	Each
‡No. 211 Large Wringer Bracket	$0 25
‡No 212 Small Wringer Bracket	.25
‡No 213A Top Catch	.15
‡No 214 Side Catch	.25
‡No 228 Handle	.15
‡No 226 Handle Plate	.15
‡No. 300 Lid Rest	.15



‡REPAIRS FOR No. 15 WASHERS.

	Each
‡No. A1—Arch	$0.30
‡No. B —Large Gear	.30
‡No. C-1—Small Gear	.20
‡No D - Brace	.20
‡No E Small Gear Plate	.15
‡No. 6 —Pin Wheel and Post	.50
‡No. 7 —Mesh Wheel	.05
‡No. 8 —Spring	.05
‡No 9 —Handle	.10

‡*Each part must be ordered by Number. In Ordering be sure and state also the Name of part wanted, and the Name of Manufacturer, or Number of Machine.*

‡*Goods marked thus (‡) are not carried in stock and can only be furnished by shipment direct from the factory.*

HARDENING STEEL.

I am a reader of Cycle and Automobile Trade Journal. I would like to have you give directions through Journal for hardening nickel steel. A blacksmith here heated automobile cones a good red heat and put them in water, but they did not harden and had to be thrown away. I think they were nickel steel. Please give what steel they are made of and how hardened, and oblige

J. D. BUCHER.

It is impossible to advise you as to hardening steel unless its composition is known. The makers can probably advise you how to handle it. If the usual 3½ per cent. nickel, it is likely to crack and get brittle if heated very hot. The lowest possible red is hot enuf. —C. E. D.

SPARK PLUG ELECTRODE MATERIAL.

Camden, Ark

As a subscriber may I ask of the proper department for information. Of what material are spark plug electrodes or sparking points made? Does it require some soft special material? Your reply will be appreciated

J. W. BROWN, JR.

Ignition points, whether for high or low tension, should be of some material that is not easily carried away by the spark or destroyed by the heat. Platinum is probably the very best material, but because of its cost this is seldom used except as tips. The jump spark is of so little quantity that it is easily carried and does not burn away the points rapidly, so it may be carried by most any material, but if the points get a coating of oxide, it acts as an insulator and decreases the spark size. A material that does not oxidize easily is therefore best. A number of alloys are sold for this purpose, copper, silver and nickel being used in their composition.—C. E. D.

Steam Cars

J. A. KINGMAN

ALCOHOL AND ACETYLENE FOR STEAMERS.

Will you kindly answer the following questions through the columns of the Cycle & Automobile Trade Journal?

1. Has alcohol or acetylene ever been used as fuel for steam automobiles? With what results? 2. In a general way, what are the principal advantages, if any, and the serious drawbacks in the use of either of these fuels? A. D. KELLOGG.

Alcohol has been experimented with to a limited extent for use in steam car burners, but owing to the greater difficulty of the vaporization of the gasoline is decidedly inconvenient. The matter of convenience is one of the very first things to consider and it is very easy to conceive of a fuel which would be ideal but which also might be very scarce and this latter quality would make it absolutely worthless because an automobiler must be able to get the same kind of fuel in all parts of the country at all seasons of the year without any difficulty whatever. For this reason it is difficult to say why acetylene gas should be seriously considered owing to the unstable character of the chemicals composed from which the gas is made as well as to other equally great, if not greater, objections.—J. A. K

2-Cycle Engines

HUGH DOLNAR

WANTS 2-CYCLE ENGINE DESIGNED.

Williamsburgh, Pa.

We are going to build a gasoline marine engine of the 2-cycle type, 5½ bore x 5½ stroke. We would like to know what H. P. this engine will develop at 600 revolutions a minute, also what thickness the I. S. and O. S. walls should be and what size the exhaust should be; which is better, round or square? What dimensions should the intake valve be? Would 2½ in. from the exhaust port be far enough for the carbureter? What size should the base be? The thickness of the iron and what size and weight fly-wheel would be most suitable for this kind of an engine? You will greatly oblige us by giving this information.

B. B. SUPPLY CO.

This communication is typical. In reply, first, granting that the Journal stands ready to design 2-cycle motors without charge for all applicants, the H. P. depends on so many variables that nothing definite can be determined from what is stated in this letter; a single 5½x5½ in. 2-cycle cylinder might show as much as 20 H. P., or as little as 4 or 5 H. P at 600 R. P. M., depending on the charging system employed.

The cylinder walls may be 5-16 or ⅜ thick, and the water jacket walls may be ¼ thick, if these are the dimensions implied by "I. S." and "O. S." The exhaust pipe should be of greater cross-section area than the exhaust port area, and is made very much greater in some late 2-cycle designs. The cylinder exhaust port may be 4½ in. wide x 1 in. long, giving 4½ sq. ins. area. Pipes are commonly made round in form.

The carbureter might be undesirably warmed if placed 2½ ins. from the exhaust. Two-cycle motors do not commonly employ an intake valve. If an automatic valve in the cylinder head is to be used, it should be 2½ to 2¾ ins. dia. The fly-wheel may be 24 to 30 ins. dia., to weigh 150 or 200 lbs. Four cubic ins. of gray iron weigh about a pound and you can easily find the weight of your fly-wheel after you decide upon its form and diameter.

Nothing shows whether this proposed motor is to be horizontal or vertical; nothing can be told of base dimensions, save that the base walls should be not less than about ¼ in. in thickness.

Correspondents should give some careful thought to "Journal" queries. In this case the items specified are not sufficient for an enlightening reply.—H. D

PATENTS AND REAR WHEEL STEERING.

Will you please answer the following questions in your two-cycle column?

Is the form of piston used in the Atlas motor broadly covered by patent, or could the same general arrangement be used by anyone? Using this form of piston with an air-cooled motor, it seems to me the best practice would be to distribute the ports circumferentially around the cylinder, in order to avoid distortion from overheating one side. If this is correct, will you be good enough to state what, in your opinion, would be the proper dimensions for exhaust and inlet ports, using a cylinder 4 in x 4 in. What distance should be allowed for compression space, same having a diameter of 4 in., and of semi-spherical form

I was very much interested, as well as instructed, by the valuable articles published in your February number. The motor I contemplate uses an extended piston to fill cylinder with pure air, and fuel pump to inject fuel on compression stroke. I am counting on injecting fuel one inch piston travel below

dead centre. Would this be too early? The motor in question would be used for a commercial wagon, and I would like to know if there is any objection to using a longer stroke in order to obtain a slower speed engine, instead of using smaller ports, as suggested in a recent article published in the Journal.

Is there any well founded objection to utilizing the rear wheels to steer the car? I believe that the distinct advantage of applying the power through the front wheels more than offsets any disadvantage which I can figure from steering by rear wheels.

If you will be good enough to answer these questions in an early number of your Journal I shall greatly appreciate it, as, while probably all of them are very elementary, my knowledge of the two-cycle problem is comparatively small, and of recent acquisition.

CHAS. ROBERTS.

The Atlas piston and arrangement is believed to be covered by patents either issued or pending. The circumferential exhaust is best in theory if the mere escape of the gases is the only thing wanted. But if allowed to escape all around they must be carried away and this means that the cylinder is surrounded by a hot chamber which is not conducive to best and easiest cooling.

I think ⅝ in. and ⅜ in. would be about right for the ports and I would use low compression making the compression space about half the displacement of the piston after the exhaust port closed. 4 x 4 x .7854 x 3⅜ in. equals 42½ cubic inches, so your compression space should have about 21 inches capacity. The semi-spherical head will contain half as much as a sphere and the contents of a sphere are found by cubing the diameter and multiplying by .5236. This is nearly 17 inches, so your cylinder bore must extend ⅝ of an inch beyond the piston at dead centre in order to get the remaining 4¼ inches.

The quicker you inject after the exhaust port closes, the better, for it gives the mixture more time to become homogeneous. In this method of feeding it is difficult to get a nice mixture, and if the mixture is not proper the exhaust is foul and much fuel is used with little resultant power. When you have it going we will be pleased to hear how it works and what sort of pump you employed for injection. It is well to work the engine at a fairly high speed, for this permits expanding the gases before they have time to cool off. 750 ft. of piston speed per minute is not too fast for a business wagon, and you will do well to lengthen the stroke so as to get this at the turns you expect to use.

There are many reasons why rear steering is not good. A rear steering cannot get away from the curb except by backing, and it must turn across a car track in order to get out of it. Try leading a cycle backwards and see how much trouble it is compared with the usual way. If you much prefer front drive, make the rig also front steering. I believe this will be much used in future for business wagons. Many people are trying to get a four-wheel drive, for this certainly overcomes the faults of slippery pavements and icy spots. It adds something to the complication, but it is really astonishing how much can be left off if one gets at a problem and hunts for simplicity. Now that the public are coming to their senses and looking for economy, it will be doubtless bring about much simplification.—C. E. D.

2-PORT VS. 3-PORT MOTORS.

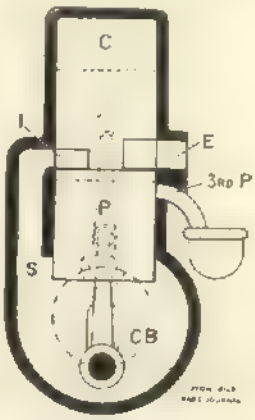
Lethbridge, Alberta.

May I ask of you to give me a description of the difference between a 2-port 2-cycle and a 3-port 2-cycle engine, with their respective merits and demerits?

Have you ever published, and if so, in what numbers, any working drawings of a 2-cycle motor engine that a fellow could work from with a reasonable assurance of success. Of course, I mean for his own pastime, as I would like to build a 2 or 3-cylinder 2-cycle air-cooled of about 20 to 25 H. P. I may say the first engine I built two years ago was a 2 H. P. air-cooled 4-cycle and it is still running a 16-in. swing lathe and grinders. I am now building a 4¾ bore x 5 in. stroke water-cooled 4 cycle, but tho I know practically nothing about the 2-cycles, I want to learn.

"IGNORAMUS."

The term "3-port" is applied to crank-box-pressure cylinder-supply, 2-stroke-cycle motors only, and indicates that the piston is made to serve as intake and exhaust port valves for the working cylinder at its head, or, if the cylinder is vertical, top end, and also to serve as the crank-box intake-valve at the crank-end or lower end of the piston which last is known as the third port, and



distinguishes this type of 2-cycle engine from one in which the intake into the crank case is thru a valve of some type, these being known as 2-port engines. The accompanying figure shows a 3-port engine, the full line piston is at the bottom of its stroke with I (intake port) and E (exhaust port) open. I allows the crank-box charge transfer to the cylinder, while E communicates with the muffler. In this position the third port, 3d P. is closed by the top of the piston. The third port communicates with the carbureter. In dotted lines the piston is at the head end of its stroke with the charge compressed in the compression chamber, C, which is merely the top portion of the cylinder bore. The piston covers, I and E, but opens the 3d port to give communication between the carbureter and the crank-box. In traveling up from low point to high point the piston displacement has reduced the crank-box pressure to considerably below atmosphere, and as soon as the 3d port is uncovered by the ascending piston, mixture from the carbureter rushes into the crank-box to supply the partial vacuum. The 3d port is closed very early in the descent of the piston in making its working stroke.

It will be seen that the 3d port can be open but a short time, only 60 or 70 degrees of crank time at most, and that part of the charge sucked into the crank-box must be forced back through the carbureter before the piston closes the 3d port, and it is evident that the 3d port should be as short as possible axially, and have its area made sufficient by extending it circumferentially. It will also be noted that the carbureter is first violently sucked and then has part of the crank-case

charge returned to it through the 3d port. All of this tends to make carbureter action uncertain with the 2 cycle 3-port motor.

Instead of the 3d port a rotary valve may be mechanically worked even turns with the crank-shaft, see "Armature's" crank-box illustration, or an automatic valve opening to the crank box, may be placed between the crank-box chamber and the carbureter. This mechanically worked disk valve should open the passage to the carbureter when the piston begins to rise, and close the passage from the crank box to the carbureter as soon as the piston reaches its high position, thus opening communication between the crank-box and carbureter for 180 deg. of crank time. The automatic crank-box intake valve is spring closed and cannot deliver quite so great a volume of mixture to the crank box as the mechanical valve, which is the best of the three, and gives no trouble if lubricated, as it must always be if the lubricating oil is mixed with the fuel in the fuel tank.

As to working drawings of 2-cycle motors, several 2-cycle cylinder drawings with dimensions have been printed in the Journal, and if you read the Journal constantly you should be able to build a good 2-cycle motor, crank-box supply. Use the rotary valve for crank-case supply.—H. D.

2-CYCLE ENGINE DEFLECTORS AND FUEL INJECTION.

Napanee, Ontario, Canada.

I am in receipt of your letter of February 16th, for which I wish to thank you. I would infer from your letter that you suggest pumping directly into the cylinders. My reason for not doing so is as follows, and I thought I would write you so that you embody the answer thereto in any criticism you were making in the paper.

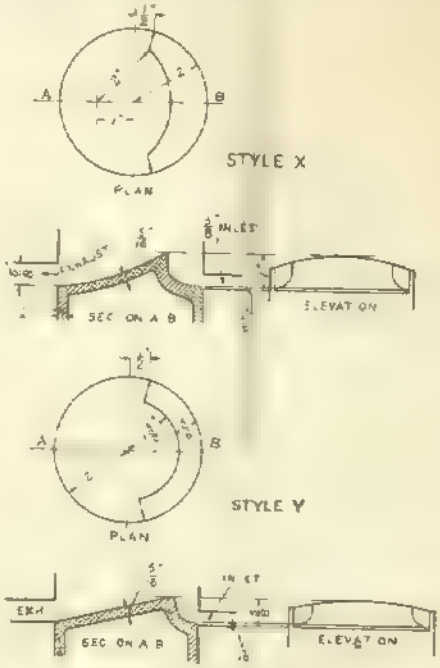
My experience has been that a weak mixture does not fire very regularly (especially on a four-cylinder engine) and below a certain percentage of gasoline you are not likely to get an explosion at all. In throttling down and using a pump spraying directly into the cylinder of the engine you would have when throttled below a certain percentage no explosions at all. A small increase in percentage would give you misfires and above that regular firing. My object was to have, even when throttled extremely low, pocketed in one part of the cylinder a mixture carburetted at its most efficient percentage so as to have sure firing at all throttled points.

I will probably this summer try an engine which I can shift from one to the other when I propose to build a three-cylinder 4x4½ engine. I am enclosing a drawing showing a couple of styles of deflectors, and in sending in your criticism on the engine please state which you would consider the best or any change you would suggest in the shape of either of them. Let them go in as before under "X." I think the sketches are self-explanatory, as I have marked several dimensions on them. I use, as you will notice, a 1-16 in. under-cut on inlet side of the piston. The distance between the inlet and exhaust port on the side would be 1 in.

When my designs are complete for the engine I would like to submit them to you for examination, but do not feel that I should do it through the paper. I would prefer meeting you and discussing the matter and paying you your charges for the consultation, as, being a civil engineer myself, I do not like to be a dead-head on another engineer on a subject of which he is a specialist.

(Signed) X.

Replying to X, I do believe that pumping fuel directly into the cylinder is the best method of 2-cycle motor fuel supply. I am now making drawings for a 6x6, 2-cycle, air-cooled motor, new mechanical movement for driving a separate supply cylinder which will a little more than fill the working cylinder with pure cold air from the top to the exhaust port. This cylinder is fitted with 6 pumps, 3 circulating force pumps and three supplying pumps, so that two kinds of fuel and water can be supplied to the cylinder in any desired quantity and at any time during the compression stroke of the working piston. I am greatly pleased with my design for this new motor, and am sure that it will tell me some things I want to be sure about. As to partial charge misfires and "4-cycling" of the 2-cycle motor when throttled close, see my long reply to Sherbondy. I am sure, from experiments, that a local rich charge of very small bulk can be placed about the spark in a charge of pure air, full compression, and so make the most "flexible" gas engine possible, and I believe this placing of a small quantity of fuel in the spark plugs immediate vicinity can be better effected with a pump than with a carbureter, as the carbureter cannot handle the heavy liquid fuels I wish to burn. I have pumps which are ideal in construction and action, and have perfect control of fuel volume and injection time, all with an exactness quite impossible with a carbureter.



Signature "X" Deflector Suggestions.

I believe your "style X" of deflector is much superior to "style Y," because it will direct the charge upward closer to the cylinder wall. Even with a pure air charge I believe the charge should be first carried up as close to the cylinder wall on the intake side as possible, so as to take the longest possible path to the exhaust port.

I am carrying my deflector straight up to within ⅛ of an inch of the cylinder head, as the pure air charge is in no danger of pre-ignition or self ignition.

I will examine your 2-cycle design with pleasure, but I hope to be able soon to speak with such certainty as to 2-cycle motor performance that there will be no question as to the value of pump fuel supply, constant maximum compression and correct deflector form.—H. D.

A QUESTION OF EXHAUST PORTS.

Louisville, Ky.

I want to build a two-cylinder, two-cycle gasoline motor, four and one-half inch bore by four-inch stroke. I intend to build the ports like sketch inclosed and would like to know if ports are arranged right, and if the size is correct, to give free exhaust; also if the compression space is too small to allow ample size deflector. Could the thickness of the iron in cylinder be reduced without its being too thin, and get a good casting? In

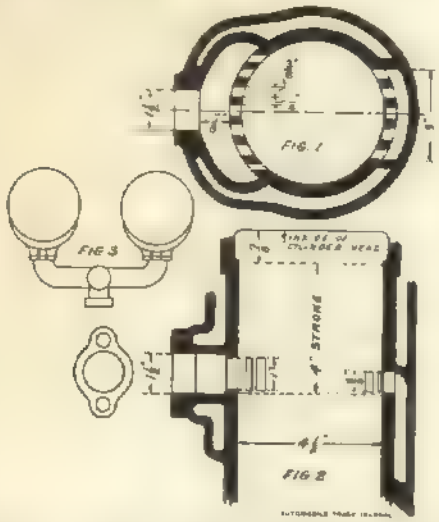


Fig. 2 of sketch, could the exhaust pipe be cast as shown without the exhaust of one forcing itself around the piston of the other cylinder, as I intend to have the cranks set 180 degrees apart and have the impulses follow after each other. It is the height and width of the slots in the exhaust port which I would particularly like to know about.

SIDNEY C. PROBERT.

Your ports are far too narrow in circumferential extent, and have far too many bridges. Carry your ports through 120 deg. of cylinder circumference at least, and do not place more than three bridges in each port. You can reduce your crank-box clearance by making the intake port only ½ in. long, where you now have ⅝. You do not show your deflector form. Make the deflector as high as you can and clear the cylinder head.

The exhaust pipe you show is very bad. Place the muffler to one side and lead both exhaust branches to it with large radius curves, both pointing the same way, ordinary form. Make your exhaust piping large and free and give the exhaust one direction only.

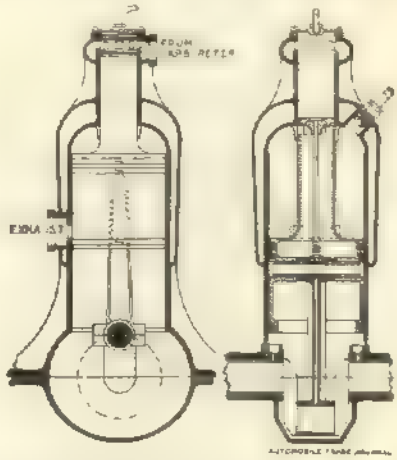
A quarter of an inch is plenty thick enough for your cylinder walls and 3-16 is enough for the water jacket walls.

See Perry Okey motor in March Journal. This whole 3-cylinder Okey motor, crank-box, base-lugs, cylinders and water jackets, made in one piece of gray iron casting, is only 3-16 thick, one of the finest jobs of gray iron work I ever saw. It requires very accurate pattern and core-box making to produce such a thin job, and you had better try ¼ for cylinder walls and 3-16 or 7-32 for water jacket walls.—H. D.

ANOTHER HENDERSON DESIGN.

Buffalo, N. Y.

Having benefited by your criticism of my former design, I will appreciate your opinion of the accompanying sketch. Interested parties have mentioned certain difficulties with my previous design, one being serious, that of the piston tube overheating, the other increased motor height. On studying the matter over I concluded the pure air port scheme was bad, and by admitting the gas at the top I entirely overcame the overheating condition. As to increased motor height, it is not what it appears to be, being only about two inches in a motor of 4½-inch stroke. My reasons for abandoning the pure air port idea are these: I think it would be liable to have the reverse effect of what I expected of it, because a light mixture causes back firing. It would also have to have a throttle



in connection with the carbureter throttle, which would add complications. The oiling system shown works out in this manner. The oil enters at the top of small cylinder, oils small cylinder walls, passes thru tube shown, distributing thru wrist bearing to cylinder walls, thru hollow conn. rod to crank pin bearing. The drip from cylinder walls takes care of main bearings. The points of advantage I see in this design are improved crank case compression, oiling, carburization, charge placing and durability. I have not built a motor of this design, but have entered application for a patent, and would like to hear from any interested party who has the capital to push this design as an automobile motor.

WM. G. HENDERSON,
191 Hoyt St., Buffalo N. Y.
Formerly 10723 Olivet Ave., Cleveland, O.

This is a 3-port motor in crank box charging operation, and has the advantages of effecting a working cylinder charge entrance at the top of the cylinder, as far from the exhaust as the cylinder dimensions permit, without the disadvantage of an automatic intake valve in the cylinder head.

The castings are simple, the engine is easy to build and the double travel of the charge, first downward from the carbureter to the crank box, and then upward from the crank-box through the top ports of the top trunk into the cylinder, ensures cooling of the top trunk and also imparts a part of the piston and trunk superfluous heat to the incoming cylinder charge. The oiling is neat and certain. I regard this design as highly creditable.—H. D.

"NEMO."

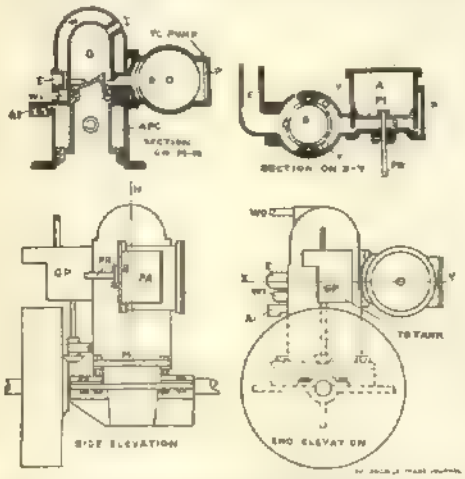
A number of correspondents have sent requests for Nemo's address. All such letters have been forwarded to Nemo, who writes that he has replied to such, as he wishes to hear from at greater length. H. D.

A NOVEL 2-CYCLE SUGGESTION.

Wapanee, Mich.

Please find enclosed sketch for a 2-cycle engine upon which I would like your opinion.

The object of this engine is to first scavenge the burnt mixture with pure air and then admit enough (when working at full-load) mixture to fully fill the cylinder and compression chamber and when working throttled more air would be admitted and the perfect mixture would follow at the latter part so as to remain as much as possible along the inlet side of the cylinder and be compressed in that part of the compression chamber and fired there. To accomplish this I enlarge the lower part of the cylinder and piston so as to make an air pump out of it. At one side I have another cylinder which acts as an air chamber or rather two air chambers A and B separated by a piston P. I. See section of cylinder on X. Y. This cylinder is bolted to the side of the engine so that Chamber B is directly connected by a passage to the inlet port of the engine. The air pump is connected to this passage by two check valves V. which can be readily removed to grind. Chambers A and B are connected together by an outside passage P. G. P. Inside view contains a variable throw gasoline pump operated by the engine crank shaft through a set of bevel gears. The variations of the gas-



oline pump are obtained by shifting levers, not shown, in connection with the movement of Piston, P. I. so that when chamber B. is at minimum (capacity) the gasoline pump is working at its maximum stroke and when B. is at maximum the gasoline feed is completely cut off. The gasoline pump is connected to the passage P. between A. and B. so that the gasoline is sprayed into that passage. The volume of the air pump is such that it will compress the air into chambers A. and B. and connecting passages to a pressure of about ten to fifteen pounds (gauge). Now when the pump forces air into chambers A. and B., that portion going into chamber A. is carburetted by the gasoline sprayed into passage P. The piston then makes its downward stroke and (the air pump sucking in the fresh air through the air inlet A. I.) on reaching the lower part of its stroke will uncover the exhaust port E. and afterwards the inlet port connected to B. allowing the fresh air in chamber B. and passages to reach the power cylinder G. and scavenge the burnt gases first to be followed by the carburetted air in chamber A. When working at its maximum stroke chamber A. is of such a size that the carburetted air in it will fill the engine cylinder and compression chamber and passages B. On the up stroke of the piston the fresh air in the air pump will open the valves V. and drive first the carburetted air into passages and B. back into A. and the mixture in the engine cylinder will be compressed and fired at the upper part of the stroke. With throttled charge, the chamber A. would be reduced in volume and B. increased while the volume of gasoline or other liquid would also be reduced to correspond to reduction of A. In this case of course there would not be enough mixture in A. to fill B. and passages and G. would then be only partially filled with best mixture on inlet side and be fired upon that side. When completely shut off mixture in A. would just fill B. and passages driving out air while gasoline pump would stop and engine could then be used as a brake if in an automobile.—(Signature) X.

"X" sends sketches and specifications as reproduced above. As X is doubtless aware, the 2-diameter piston supply is well known, and can be well used with a 3-cylinder, 2-cycle motor, cranks at 120 deg., the supply or charging piston of one cylinder being used to charge the working cylinder next preceding in firing order: see "Euclid" motor, patent applied for, page 134 March issue. With a 3-cylinder motor the charge compression is about 15 pounds gauge, "Euclid" arrangement, if memory serves correctly.

X seeks to add another function to his single cylinder motor, that of scavenging by a separate pure air scavenging pump, and then, after the working cylinder has been swept clean by the pure air charge, X proposes to introduce the combustible mixture in such a way as to drive out more or less of the scavenging pure air according to the mixture volume passed into the working cylinder, G., from the mixture cylinder A., all as described in the specification and illustrated by the accompanying sketches.

The questions on this design are, is the intended action desirable, and are the results gained in the simplest way?

First, is it needful to ensure complete scavenging by filling the working cylinder more than full of pure air before supplying any part of the combustible charge? It is not necessary as the cubic displacement of the piston in A. P. C. can be made to force volume enough of pure air into the working cylinder, G. to more than fill G., wholly displacing the burnt residue with pure air.

Second, the gasoline pump, G. P., is specified as delivering a variable quantity of gasoline in form of spray to the interior of passage P. at the desired time. When so readily vaporized a liquid as gasoline this means that G. P. can if desired spray the fuel into the pure air charge in G. at any time after the working cylinder intake port is closed by the piston, so that the compressed charge will be either of nearly uniform composition throughout its entire bulk when compressed, or so that the charge will be richest in the immediate vicinity of the spark plug or point of ignition.

What, then, remains to be gained by the action of the piston, P. I., in the third cylinder, A?

The writer is convinced that the 2-cycle cylinder is sufficiently cleared of burned charge residue by the sudden opening of a large and unobstructed exhaust port area, to enable the working cylinder to be filled down to the top line of the exhaust pipe, with pure air from A. P. C., without blowing pure air out through the exhaust, and, also, that this pure air can be perfectly carburized by pump injection of either gasoline or kerosene.

If this belief is correct, then the working cylinder, G., the supply cylinder A. P. C., and the gasoline pump can do all that need be done, and the remaining agencies shown by X are redundant and should not be placed.—Hugh Dolnar.

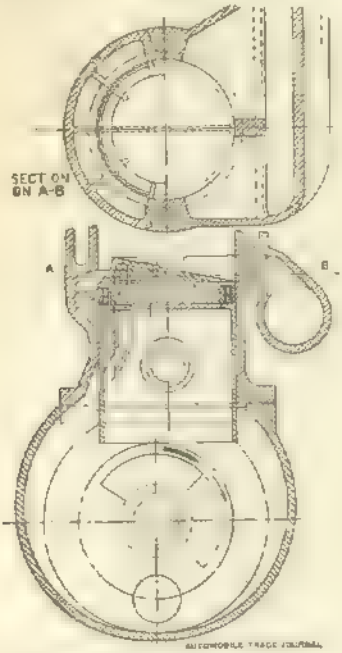
(The supply cylinder A. P. C., as shown cannot be used on a single cylinder motor without some storage chamber between it and the combustion chamber proper as there is no compressed charge in A. P. C., at the time the piston uncovers the intake to the cylinder G., and this design is probably intended by X for a single cylinder motor only.—Ed.)

2-CYCLE ENGINE DESIGN CRITICISM.

Erie, Pa.

Will you kindly check over the following dimensions and construction of a two-cycle engine that I intend to build? I am also sending you drawing of same. You can do as you see best with it.

(1) Bore, 4 in.; (2) stroke, 4½ in.; (3) connecting rod, 6¾ in. C to C; (4) cylinder offset, ⅜ in.; (5) inlet port, ⅝ in.; (6) exhaust port, ¾ in.; (7) bottom of inlet and exhaust ports to be in line; (8) deflector and piston as shown; (9) inlet and exhaust ports to be separated by bridges 1 in. wide; (10) inlet to crank case by revolving disc valve; (11) three ring piston packing, wide ring outside. I think by making these rings this way I can dispense with bridges in the inlet port, thereby giving the fresh charge a clean sweep in the cylinder.



"Armature" Suggested 2-cycle Motor

What size carbureter would you suggest for this engine? Is the deflector high enough? and what do you think of the shape of same? Crank shaft to be 1⅝ in. diameter; wrist pin, 1⅝ in. dia. x 1½ in long; piston pin, 1 in. dia. Disc valve to be driven by crank arm engaging two lugs on disc. What do you think of closing disc valve about 20 degrees late or after the piston has passed the out-centre? Could I not get the benefit of the ramming action of the gas this way? and in so doing get a larger and purer charge into the cylinder. Are there any patents on any of the constructions I have shown?—ARMATURE

The drawing shows a crank-box having more clearance than is needed if the crank-wrist end of the rod is made as small as possible by bringing the cap screws close to the wrist as may be. The other points noted are, (2) rod, 6¾ ins. C to C. This should be not less than 9 ins., two strokes. (8) The deflector should, I believe, be as high as it can be and clear the cylinder head, increasing the height as shown in dotted lines. There seems to be nothing gained by carrying the charge passage in the piston to an exit above the packing rings, if that is what the dotted lines in the piston head are intended to show. The drawing shows a piston port below the rings, also, and does not make the piston head construction clear. (11) I believe the 3-ring packing far better than the ordinary single packing rings, but would advise at least 1-inch width of wide ring, and should also place at least 3 bridges in each port, intake and exhaust. The port area is more than ample

The mechanically operated crank-box intake valve is favorable to carbureter action and a pipe 1¼ ins. dia., carbureter to crank-box would seem large enough. The crank-box valve should close when the crank is on its low centre.

I believe this design does not infringe any patent, but am not sure as to the disk valve in the crank-box.—H. D.

(The Atlas Motor Car Co., Springfield, Mass., hold a patent on a disc valve intake into the crank case.—Ed.)

"NEMO" AGAIN

"Nemo" writes a second characteristic letter to Hugh Dolnar, in which he details his experiences, which have cost him real money, in endeavoring to obtain original 2-cycle motor designs from "Experts." Each of these experts proposed to furnish Nemo an all-new and surely-best 2-cycle motor "design," complete working drawings for an up-set price. Nemo to pay the price before drawings were supplied and to take whatever the expert sent in, regardless, and be good natured about it. Nemo complains that this may be fair to the highly skilled and of course fully competent expert, but does not really seem certain to give him a run for his money.

This whole matter can be correctly exhibited in a few words.

First, a new 2-cycle motor design to be of real value must show a motor which is not only patentable, but can show good B. P. H., fuel economy, is good to build and is durable.

Experts capable of producing a 2-cycle motor original design meeting these specifications are not likely to offer their services for a small set price.

The Journal is forwarding "Nemo," communications from Victor Jakob, Plattsburg, New York, The Perfect Automobile Mfg. Co.; Walter C. Willard, 2353 E. 79th St. S. E., Cleveland, Ohio, and R. Foote, 4 Van St., Rochester, N. Y.—H. D.

MALCOM'S ENGINE WAS DESTROYED

Please inform me about Mr. C. P. Malcom's engine that ran, as stated in the Journal for 24 hours at a total cost of 18 cents. I expected to hear about same in your columns and have looked for it every month.

ANTHONY ORTH

This engine was destroyed by fire near Chicago soon after the 24-hour run, probably about 1904. It is believed that it had a 6x6 cylinder. The cylinder supply was by crank-box pressure, with side pipe to the top of the vertical cylinder which had an automatic intake valve in the head. The low cost of this 24-hour run developing 10 H. P. constantly, was due, mainly to the low cost of the fuel which was raw petroleum, costing in that particular instance, less than two cents per gallon, as the writer was informed by Mr. Malcolm.

H. D.

INTAKE THRU PISTON CENTRE

Thompsonville, Conn.

I wish to thank you for your criticism of my "flying piston" scheme. I herewith send you a sketch of a deflector for discussion in the Journal.

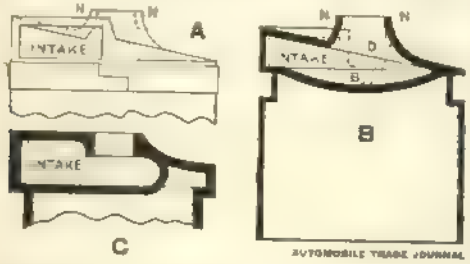
You will see, when you consider, that when four-cycle machines come in with cylinders and pistons worn out, the owners, wishing more power, think that two-cycle cylinders could be substituted, since they must have new ones anyway. Now if we could do this

without too much extra machinery, you will understand that some of us would have fewer worries.

The object of this deflector is to get the central charge effect so that motor will have "flexibility" and also to avoid both the piston valve and cutting ports in two planes.

More particularly I wish to apply this to engines already existing which have the side deflector. When re-bored, they will have to have new pistons, and if this type will locate barge so they will run throttled down, would like to use it.

I wish to use three rings in one groove, but do not like the appearance of piston with



Repairman Piston. A, elevation B, section C, suggested form

ports in two planes unless snap rings are used

To explain deflector: The whole top slants towards exhaust side except nozzle The ports are cut clear around cylinder except bridges. The intake looks short in the drawing, but this is really a projection, and it is nearly half the piston circumference in width.

Will this device work all right?

Will the depression in piston head catch oil and make trouble from "carbon"? Should the nozzle be higher than the proportion shown? Should the area of nozzle opening be same as intake port? Will any part heat unduly? The depression in head is made to give plenty of room under nozzle. It is cored out farther toward exhaust port than necessary for gas flow to keep that part cool.

Would it be better to turn passage right up and core out below piston head for this purpose? What, in your opinion, is the best way to put charge in cylinder?

I note on page 60 of the February Journal you do not advocate fan or crank box pressure. If there is some good and simple way to put in a charge without using either of these or an extra piston, or rotary blower, or double piston or another cylinder for compression, or a bellows, it would fill a "long felt want" for those of us who are fixing over old engines.—REPAIRMAN.

Repairman's letter is printed in full, as it presents actual conditions, and the changing of existing 4-cycle motors to 2-cycle motors will probably be often attempted.

First, as to Repairman's piston, shown in Figs. 1 and 2. I am not an advocate of the 2-plane port placing, as I prefer the simple form of cylinder.

I do not think oil would collect in the basin, B, Fig. 2, but would suggest changing the floor to the form shown by dotted lines, D, to ensure sweeping the basin clean by the inrushing charge

Central charge delivery nozzles have given self-ignition and pre-ignition by heating the thin top end of the central nozzle, N, N To avoid this I have considered the form shown in Fig 2, in which directing length of nozzle is obtained by carrying the nozzle wall downward instead of upward.

I am a firm believer in the supply cylinder in some form, in the pure air charge of constant volume, ensuring constant compression, and in pump fuel supply, eliminating the carbureter.—H. D.

OPEN CRANK CASE 2-CYCLE ENGINE.

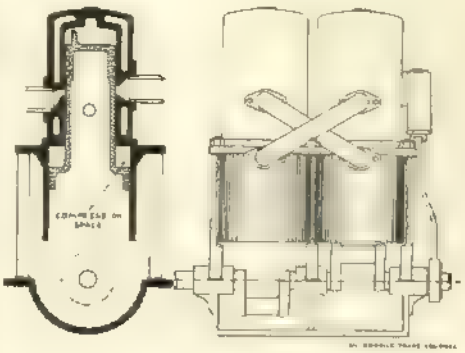
Hoquiam, Wash.

I am sending you photos of drawings of a compound cylinder two-cycle engine that I have recently built. Have not made a thorough test of the engine yet but have run it some and it appears to work well; should say that I have speeded it up to 1000 or 1200 R. P. M.

I contemplate building another about 5 in. x 5 in. on the same lines, what horse power should I get from it on 600 R. P. M.; I want this next one to be slower for a boat, and as the pistons are necessarily heavier in this class of engine, I think a moderate speed would give best results.

How many pounds compression will give best results in the compression or pump cylinder? I thought from 10 to 12 pounds should be about right. What size should my inlet and exhaust ports be? Would you advise taking the gas through check valves in the offset or a third port? Will you please criticise this design. I have run gas engines more or less for 15 years but this is my first attempt at design —Geo. H. Hitchings.

The Hitchings 2-cylinder 2-cycle motor, with 2-diameter piston supply, is not what is com-



monly understood by the term "compound," which signifies that a working charge after being used in the cylinder in which it was first fired, is exhausted into a second cylinder to drive a second piston. Compound gas engines have had extensive trials but, so far are not known to have achieved a commanding commercial success.

The engine shown in Mr Hitchings drawings, has four cylinders, two integral tandem pairs, the lower cylinders being the larger in diameter. Each cylinder is fitted with two pistons, integral and tandem, the lower end of one cylinder acting as a supply cylinder for the other working cylinder.

The ports for a 5 x 5 cylinder should, in my opinoin, be 4 inches wide, by ⅝ intake length and ⅞ exhaust length.

The charging cylinder pressure will depend on working cylinder intake port length and on the passage volume between the supply cylinder and the working cylinder intake port. For as slow a speed as 600 R. P. M. 3½ to 5 pounds charging cylinder pressure is ample, and since charging cylinder work is an entire loss the pressure should be as low as will cause the charge to go to the working cylinder in the time available. There should be valves between the carburetor and the supply cylinders, and also between the supply cylinders and the working cylinders. The 3d port makes a fluc-

tuating demand on the carburetor which is not easily satisfied. A pair of 5 x 5 cylinders, as shown, should give 25 to 30 H P at 600 R. P M. H. D.

COMPRESSION AND IGNITION.

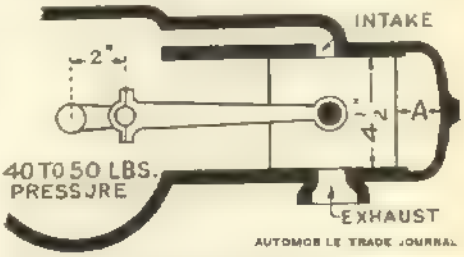
The Editor of the Journal, April issue, page 79, foot of first column, asserts that it is a "fact" that the charge is more easily ignited when only moderately compressed than when it is more highly compressed In view of the "facts" that the Diesel and other high compression motors ignite the charge by compression alone, and that all recognized authorities assert that the higher the compression the more ready the ignition becomes, and that many motor builders favor comparatively low compression as making the charge less liable to pre-ignition and self-ignition, it is evident that the Editor either has information not generally known, or has made an erroneous statement.—H. D.

(H. D. is perfectly correct in his statements above in regard to self-ignition, etc., in stationary engines of Diesel type, in which compression pressures of four and five times those used in automobile motors are employed. There is no discussion in regard to compression pressures sufficient to raise the temperature of the mixture to or near the critical point. Furthermore the temperature due to compression was not what was referred to in our editorial comment on 4-cycling of 2-cycle motors nor was that comment intended to be generalized to cover other than the small 2-cycle engine conditions in question, in which probably the maximum compression pressures are not over 80 or 85 pounds. What we intended to convey was the idea, that the pressures due to compression are not the cause of 4-cycling of a 2-cycle motor and have very little if anything to do with it and that if there is any difference, a charge is more difficult to ignite regularly at 80 or 85 pounds than at lower pressures owing to the irregularity and poorness of the spark under high compression. This is shown by the failure of plugs to spark under compression which spark readily at atmospheric pressure. That 4-cycling is not caused by low compression will be appreciated when it is remembered that a correct mixture will explode regularly and without a miss, even when not compressed at all if a good spark is supplied, and the commonly accepted theory of 4-cycling is that given in our comment.—Ed.)

PECULIAR IDEA OF CRANK CASE PRESSURES

Will you please tell me how much space I will have to have for compression at A with 40 to 50 pounds in the crank case.—J. A. N.

(This communication is not sufficiently clear to indicate just what J. A. N. desires to know However, we judge the proper clearance space, ordinary practice in a 4½ bore, 4 inch stroke, 2-cycle motor is desired. About an inch to one inch and a quarter according to the shape of the head will be sufficient. But the crank case pressure 40 to 50 pounds marked on the drawing shows J. A. N. is laboring under a



delusion. No such pressure is possible without the use of an auxiliary piston and is not even desirable. From 4 to 8 pounds can be had by piston displacement, possibly more by carefully reducing crank case volume

The crank case pressure has practically no effect on the compression pressure in the cylinder except that at high speeds a low crank case pressure will not cause a sufficiently rapid charge transfer to place in the cylinder even an amount equal to the piston displacement, while at a higher pressure slightly more will be transferred during the same limited intake port opening duration. —Ed.)

Opinions and Suggestions

Under the above heading we will be pleased to publish letters from our readers, expressing opinions, stating how they have overcome difficulties, or making useful suggestions. In this department will also be published longer communications or articles, of either a general or technical nature. This department is called the "Difficulties Overcome By Users" department, owing to its growth and the varied nature of the matter received.

FINISHING CYLINDERS WITHOUT GRINDING.

In the April number of the Trade Journal is a letter from S. D. F. asking for information on the subject of cylinder finishing without grinding. As I have had some experience along this line will try and help the gentleman out. I think the best way to finish cylinders without grinding is to lay them in with cylinder oil and ground glass, machine oil will do but cylinder oil is better. Run them for about 3 hours, driven from the line shaft sometimes it is policy to run them six or seven hours, but usually 3 hours will give a good job. Emery should never be used, except in the form of a wheel, the writer has never known any trouble from emery being imbedded in the cylinder walls when used in wheel form and work well cleaned with gasoline before putting cylinder on motors.—J. F. Richman.

IN FAVOR OF STANDARD JIG BUSHINGS.

Woonsocket, R. I

I was much interested in Mr. F. Wertheim's article in Trade Journal of March 1 in regard to standard bushings for jigs, and I am quite sure they could be sold in very large quantities if made right and sold at a fair price, and I think very few shops would make their bushings if they could buy them right, and I should thing some one with the proper facilities would put the smaller sizes on the market at once.

E. R. DARLING.

COIL DAMAGED BY DISCONNECTING SECONDARY WIRES.

Apparently few motorists realize the damage which may be done to a coil by disconnecting a secondary wire from its plug and running the engine without grounding this wire. Under these conditions the full voltage of the secondary current is discharged thru the air gap of theoretically infinite resistance and grave danger is run of breaking down the insulation of the coil. Secondary wires when disconnected should always be grounded upon the engine or frame if the engine is turned over with the switch on.

THE THOMAS LINE FOR 1909

BY MORRIS A. HALL.

In common with other firms building high-class cars who, in the past, have concentrated all of their energy on one type of car, The E. R. Thomas Motor Co., of Buffalo, N. Y., will this coming year produce a full line of cars with a wide range of bodies for everybody, every purse and every occasion.

In power these cars vary from the little four cylinder car, rated by the makers at 16 H. P. and according to the A. L. A. M. formula at 18.2 H. P. up to the big 70 H. P. six cylinder, but for which the formula would give 79.4 H. P.

The whole line of cars will include the 4-cylinder 16 H. P. Model G, a small shaft driven car intended primarily for town use, a new 6-cylinder 40 H. P. car Model L, with a shaft drive and larger bodies, which will be the leader for the coming season, the old reliable 4-cylinder 60 H. P. now designated as Model F, a large heavy chain driven car and Model K, a new big six cylinder 70 H. P. chain driven car.

THE BODIES.

The little car, Model G, is not equipped with touring or runabout body nor is the little six, Model L, turned out with a landaulet body; but otherwise the bodies for all models are five in number, touring car, 7 and 6-passenger standard with straight line body; flyabout, a new creation which is the Thomas idea of a close coupled body and seats five but may be had with a rumble seat thus accomodating six, tourabout, which is a modification of the now popular runabout body and has either three or four individual seats, and finally the enclosed bodies, either of the limousine or landaulet type, seating either six or seven. The little town car, G, is also supplied with a cabriolet body seating four as shown in the heading.

THE TOWN CAR.

The town car Model 4-16-G Thomas flyer, has a four cylinder vertical block motor of 16 H. P. the bore of which is 3⅜ inches and the stroke 4 5-16 inches. On this engine which has been designed to be very short and compact, but two crankshaft bearings are used, one at each end of the shaft, these being large diameter ball bearings of the annular type using special high duty balls. The bearing at the rear end in addition is so designed as to take thrust.

THE BLOCK MOTOR

The motor support is of the three point suspension type, the single point being forward and consisting of a finished foot at the front end of the crank case below the crankshaft. The other two points at the rear consist of two large heavy arms cast integral on the two sides of the crank case which are bored, bushed and split to receive and hold a very heavy tube. This tube is made to do triple and quadruple service in that it supports the motor, acts as a cross tie and stiffener to the frame, forms the pivotal support for the spark and throttle control levers, and also supports the steering gear.

The cylinders cast in a single unit or block have the exhaust passage cast integral allowing the use of a simple straight pipe with a flanged end brazed on, the latter bolting to the cylinder casting. The inlet passage is also cored out in the casting so that the inlet pipe is reduced to a simple straight short tube with a flanged end brazed to it. The water piping incl-

dental to most engines is eliminated as thermo-siphon is substituted for forced circulation. The water inlet passage is formed in the cylinder casting also, so that another simple bent piece of tubing is all that is necessary. One piece of brass tubing and two short lengths of rubber hose constitute the entire water piping. A core plate on each end of the upper part of the cylinder casting facilitates the removal of the core sand from the water jackets and insures better castings.

The crank case is not in two parts as usual but is cast in one piece. The ends are closed by plates, the one at the fly-wheel end being circular, but the plate at the front end enclosing as it does the gears has an irregular shape. The bracket for the magneto is cast on the left side, an imported Bosch high tension magneto being used not only on this but on all models.

Four plates are provided at the bottom of the case, one for each connecting rod, through which openings the big end bearings may be examined and adjusted. These bearings are of babbitt poured over a fixture and hand scraped.

The oiling system is double, both the splash and the pressure feed being used. The latter is fed by a positive oiler located on the dash with sight feeds.

The carburetor is of the float feed single jet type with automatic air control. It may be primed from the forward end of the car for easy starting. The earlier attempt to cast part of the carburetor in the case has now been abandoned, the complication of the pattern, core boxes and foundry work overshadowing the results.

The mixture may be controlled from the steering wheel, both spark and throttle levers being provided in the usual place.

The power is transmitted through a regular Thomas disc clutch with cork inserts to the transmission which is located on the rear axle, integral with the bevel gear housing. One universal joint is midway between the clutch and the cross member which supports the forward end of the shaft housing tube within which support is another joint. The one allows of disalignment of the engine while the other cares for the variations induced by the rise and fall of the rear axle, the latter taking place about this joint as a center. This tube is made very stout, the walls being thick and the diameter large so that this acts as a torque rod and distance or radius rod as well, no other torque or distance rods being provided. The rear end of the tube is driven in, brazed and pinned to the cover of the forward end of the transmission case. A liberal use of bolts to hold this cover in place practically makes the tube and the transmission case one, carrying out the three point suspension, the bearing at the forward end of the tube forming one point and the two spring seats on the rear axle the other two Thus both suspensions have the single point at the forward end

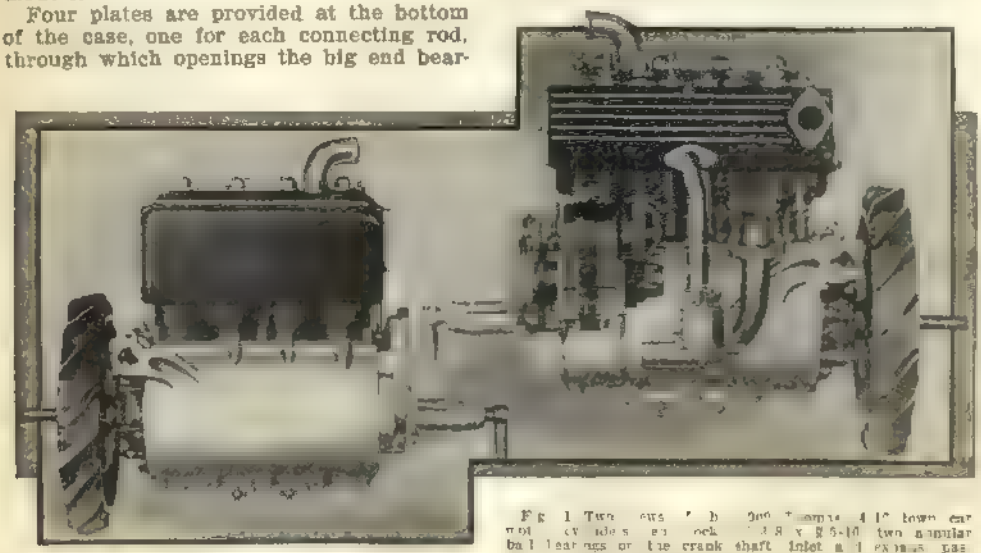


Fig. 1. Two [illegible] 200 [illegible] 4 1/2" bowl gear [illegible] cylinders [illegible] 3 8 x 5-16 two annular ball bearings on the crank shaft inlet and exhaust passages [illegible] in the casting, magneto on integral arm of the one piece aluminum crank case, separate fan blades on the periphery of the fly wheel.

Three speeds forward and reverse are provided in the transmission, the operation of the sliding gears being of the selective type using an H quadrant. The jack shaft is below the main shaft and the gears are operated from forks sliding on a shaft on the right side. The shafts, bearings and all gears may be removed either at the front end or through the large inspection cover on the top which latter is loosened by removing six wing nuts.

The transmission shafts of nickel steel both run on annular ball bearings with ball thrusts back of each of the bevel gears. The gears are all of chrome nickel steel carefully heat treated. The bevel gear housing is not only brazed to the axle tubes

but is riveted to it as well. The axle within this is of the floating type and is of large diameter, chrome nickel steel.

The front axle is also tubular but owing to the high position of the engine and its location behind the axle, this differs from regular front axles in that it has no drop. The clearance here is 10½ inches which at the rear is reduced to 9½ inches, this figure being ample for country or rough road use although the car is intended primarily for city use.

THE STEERING GEAR

Steering is accomplished through a 15-inch diameter hand wheel of mahogany and a steering gear of the worm and sector type operating a ball ended lever. This latter is squared out to fit the squared shaft and has a ball 1¼ inch diameter The sector and shaft are made in one piece of chrome nickel steel. The thrust of the worm is taken by a ball bearing but the sector rotates on Timken roller bearings. At the top will be noticed the clamp which holds the gear to the cross tube, this being the very simple method of support which the Thomas engineers have adopted.

The frame is of the simple accepted channel shape of pressed steel with a drop just forward of the rear axle and narrowed forward to increase the steering lock. The upper and lower flanges are widened out for stiffness at both of these points. The front springs are long, semi-elliptic, shackled at the rear end; the rear springs are full-elliptic, double scroll fastened to the frame by means of a cast steel bracket well ribbed. All springs are provided with rebound clips.

The wheels are mounted on annular ball bearings. The brakes which are located at the rear hubs consist of both internal and external, the latter being a band brake with fibre lining and the former metal to metal. One is operated by the right pedal and the other by the outer hand lever. A braking surface of 309 square inches is the aggregate.

32 x 4-inch tires are fitted both front and rear, Marsh detachable rims with Diamond or M. & W. tires being the standard equipment.

The wheel base has been increased 3 inches over the first models, now being 103 inches for all types while the tread remains the same at 54 inches.

The gear ratio which is 4-1 reduced from last fall's model of 3½ 1, gives speeds from 4 to 40 miles per hour. The various liquid capacities are oil, one gallon; water, eight gallons; gasoline, ten gallons. A special cabriolet body is applied for private service, but where it is desired to use these cars for public service the landaulet body is usually fitted. Any taximeter may be had With head, side and tail lamps, horn and Prest-O-Lite tank, the price for all types is $3,000.

The brougham and landaulet are painted maroon with fawn colored upholstering while the standard colors for the cabriolet are brown or chocolate with fawn running gear and upholstering.

Fig. 3. Worm and sector, steering gear and ball end lever sector and shaft integral of chrome nickel steel. thrust is taken by a ball bearing, sector mounted on Timken roller bearings. At the right this group is shown just ready for assembling

THE NEW 6-40 L CAR

Next to G in power comes Model L, which will however come first otherwise, as this is intended to be the Thomas leader for the coming year. This new car may be had in a variety of bodies.

In the standard touring car body on Model 6-40 L, the convex line is given prominence, although in all other bodies a return to the straight line is noted. With the exception of the fenders, steering post rake and hand levers the chassis of this model is the same for all bodies.

This new model is also a shaft-driven car with the Detroit type of transmission that is located at the rear axle. The engine has cylinders cast "en bloc" and is of the three point suspension type. The transmission and rear axle unit form a second three point suspension, thus following out the lines laid down in the smaller car.

AN UNUSUAL 6-CYLINDER ENGINE

The motive power is an unusual six-cylinder motor with cylinders cast in two units of three cylinders each, following the latest foreign practice. The bore is 3⅝ inches and the stroke 4 5-16 inches, giving a ratio of bore to stroke of 1 to 1.189. In this motor the practice of the G motor is carried out. The top core plate carries

the water outlet. The core plates on the side carry the exhaust and inlet passages, reducing the exhaust and inlet manifolds to simple pieces of bent tubing, as shown in Fig 3. The left side view of the motor shows the pump and also the simple water inlet. Two pieces of rubber hose complete the water piping so that the water piping is fully as simple as on the smaller model.

The engine group has a 3-point support, a tube forming the basis of the two rear points. Similarly with the transmission the rear axle tube forms the basis of the two rear points.

The accessories have been equally divided between the two sides, the left has the pump and carburetor while the right has the magneto and lubricator.

Ignition is by Bosch high tension magneto without a coil, the magneto generating a true high tension current, the spark plugs consisting of two complete sets over the valves.

The crank case is a one piece casting carried out on the same lines as before, except that the oil well cover plates are but two in number and much larger with a draincock in each.

The flywheel and clutch are the same as in the smaller model. Attention is called to the very clever method of manufacturing the flywheel fans. The flywheels are of gray cast iron turned on the outside and inside. The fan blades are formed of flat sheet steel plates 1-16-inch thick. The ears are bent at right angles to the rest of the

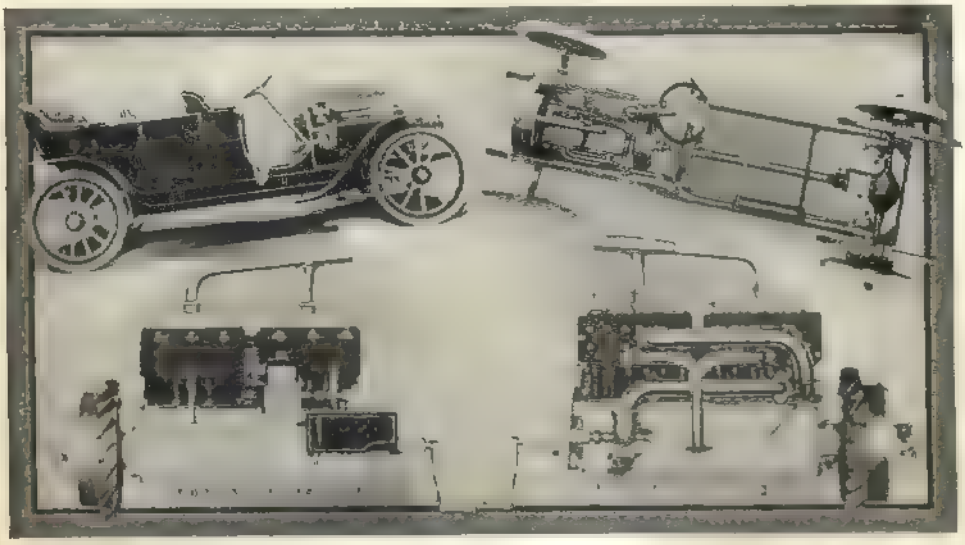


Fig. 3. Views of the new 6-40 Thomas racing car and motor. At the right is shown a plan of the chassis, and at the bottom two views of the engine are shown. Note cylinders cast in groups of three and the simple inlet and exhaust piping made possible by passages in the cylinder casting. This model is the only Thomas racer design giving prominence to the curved line body. Cylinders are 3 5/8 x 4 5/16, crank shaft on 3 bearings, ignition by Bosch high tension magneto. A transmission rear axle is used, and the layout of the parts is shown in the plan.

The valve lifter or push rod is made with an enlarged hardened flattened foot bearing directly on the cam face, no roller being used. This does away with many troublesome parts and is much simpler, cheaper and more quiet. An additional spring is used to hold the lifter down onto the cam.

The crankshaft of liberal diameter is carried on three ball bearings and a thrust bearing is provided at the rear end. The cam shaft is also carried on three large ball bearings of the silent type. The connecting rod bearings are babbitt at the large end and bronze at the piston end. They are of the standard I-section and oil grooves are cut through both the rod and the bearings at both ends. Thus at the lower end the bare crank pin dips into the oil at two places while the opening at the upper end allows the mist of oil to settle on the wrist pin.

plate and the latter bent to shape over a form. The ears are drilled and a band of sheet steel 1-16 inch thick which just fits the flywheel is slipped on over the latter. Both the flywheel and the band have previously been drilled so the plates may be set in place, a rivet inserted from the inside, the outside riveted over and then the flywheel, band and blades are one. Sixteen of the blades are used and the resultant job is a good one.

Figure 4 shows the component parts of the clutch except the ball thrust and the spring. This cut brings out more forcibly than would long arguments, the simplicity of this type of clutch. The clutch plates proper are of bronze and have 70 corks pressed into the face; two diameters ½ inch x 1 inch being used.

In Fig. 5 at the right, is a view of the rear end showing the drop in the frame,

the transmission, rear axle, arrangement of rear springs, brakes and wheels. The brakes are the same as in the smaller car, and are similarly operated. The springs are on the same style and type but wider and of a special vanadium spring steel. The rear wheels are on annular ball bearings but the front ten spoke wheels are carried on Timken tapered rollers.

The same steering gear is used as on Model G except that a larger hand wheel 18 inches in diameter is furnished.

A very flat I-beam front axle used with 36 inches diameter wheels gives a clearance of 10¾ inches which is increased at the rear to 11 inches, in spite of the size of the bevel gear housing. The front wheels are fitted with 3½ inch and the rear with 4-inch tires, Marsh rims and Diamond being the standard equipment. The tread is 56 inches and the wheel base 122 inches on all models. The gear reduction of 3½ allows of speeds up to 50 miles without over-speeding the motor

Thomas red with light gray gear or royal blue with straw color gear are the standard colors on all but the limousine which is usually finished in maroon with olive gray upholstering. The price is $3,000 except the limousine. $4,500.

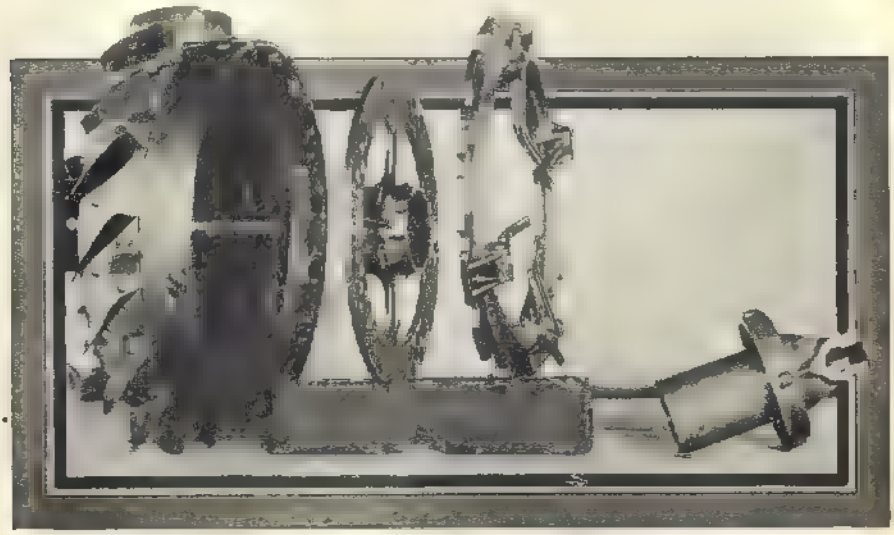


Fig. 4. 1909 Thomas. Fly wheel and clutch assembly This form of clutch is used on practically all of the models, and as shown is extremely simple, the floating ring containing a series of cork inserts which insure positive gripping but gradual engagement.

60 H. P. FLYER NOW MODEL F

Model F as the old 60 H. P. Flyer is now called, is changed but little, most of the changes being minor ones which make for greater refinement only

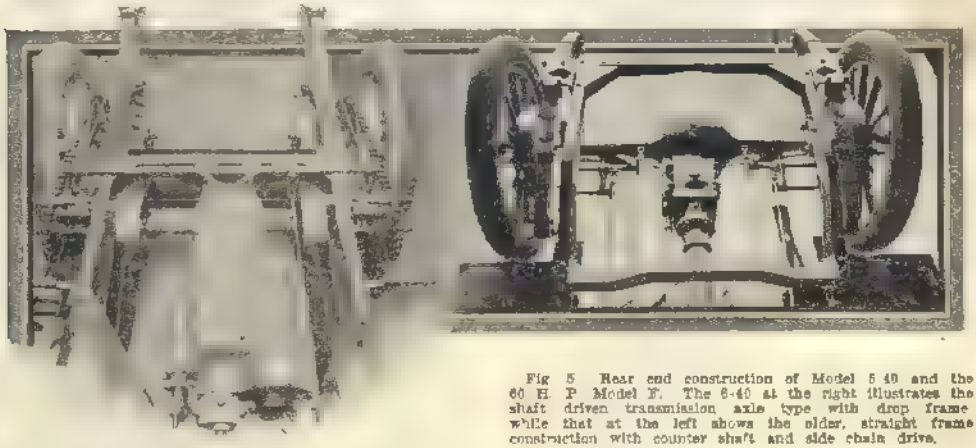


Fig 5 Rear end construction of Model 5 40 and the 60 H P Model F. The 6-40 at the right illustrates the shaft driven transmission axle type with drop frame while that at the left shows the older, straight frame construction with counter shaft and side chain drive.

This model is a chain-driven car with four speed and reverse transmission located on a sub-frame near the center of the car. The engine is the same as last year with the exception that the old cylinder diameter 5½ inches has been increased to 5¾ while the 5½-inch stroke

remains the same. The increased bore would increase the motor rating by the association formula 10 per cent. but the company has retained the old rating.

The old opposite valve construction is continued. All of the features are retained from last year and in addition the Bosch high tension magneto which forms one part of the double ignition system, the Atwater-Kent spark generator being retained for the other part. Double plugs are used, one set vertically over the inlet valve and the other set into the inlet pocket at an angle.

The magneto gear, inlet cam gear, crankshaft pinion, exhaust cam gear, and pump gear were formerly of fibre to reduce the noise but for 1909 these have been replaced by herring bone gears. They are not a true herring bone but rather a pair of spirals one right and one left joined together. This makes a gear that is not only easier to manufacture than a true herring bone but is also a sweeter, more quiet running gear and more efficient. Spiral gears are also used for the fan drive. The first motion shaft is set at a slight angle to the vertical, being driven by means of a bevel gear on the inlet cam shaft and a smaller bevel on the first motion shaft. Within the housing in front of the cylinder are the spirals. These are of small diameter and broad face, about 1½ inches, giving a very quiet drive.

At the left of Fig. 5 is shown the rear end of the chassis being principally a view of the transmission but showing incidentally the countershafts, brakes, chain drives, springs and wheels. By comparing this view with that on the right of the rear end of the shaft driven chassis, a good idea of the two forms of construction as built by one maker is obtained. This comparison will also show two of the forms of rear spring suspension semi-elliptic and full-elliptic, the two braking arrangements, one with both brakes in the rear hubs and the other with one set in the hubs, and one on the countershaft.

Also the older straight frame in comparison with the newer drop frame, and in connection with this the difference in the overhang at the rear. This latter shows plainly the modern tendency to suspend the body between the axles.

In the transmission four speeds forward and reverse are furnished on the selective system. On each side of the transmission Oldham couplings will be noticed. These take care of any difference in alignment between the transmission and the countershaft brackets and also allow of removing the transmission without disturbing the brackets, sprockets and chain drive or vice versa.

This car has a standard gear ratio of 2.78 with optional ratios for those who wish more speed. The standard allows a speed range of from 5 to 70 miles.

The clearance with 36 x 4 front tires and 36 x 5 rear on this car is 10 inches at the front axle and 13¾ at the rear. The tread is standard 56 inches and the wheel base 5 inches more than Model L, viz., 127 inches on all chassis. The bodies are five in number. Touring car at $4,500, has hand hammered aluminum body with 7 individual seats all facing forward; flyabout same price, aluminum body seating 5 and with extra rumble seats 6; tourabout, $4,500, seats three or four with single or double rumble and two enclosed models at $6,000, limousine and landaulet, each seating 7.

Fig. 6. [illegible] This car has a close coupled body with a rumble seat extending over the rear and will [illegible] 60 H. P. chassis [illegible] with five bodies and has wheel base of [illegible] The price ranges from $4,500 [illegible] touring car, to $ 000 as a seven pa[illegible] The standard equipment of all the models includes head lights, side and tail lamps [illegible] coat rack [illegible] tire irons, Prest O-Lite tank. Hartford shock absorbers and foot accelerator.

Standard equipment on all models includes head, side and tail lamps, horn, coat rack, trunk rack, tire irons, Prest-O-Lite tank, Hartford shock absorbers and foot accelerator.

MODEL K 6-70.

Model K shown in Fig. 7 which completes the 1909 line is the big 6 rated at

70 H. P. The older Thomas features are all retained on this model including symmetrical cylinders with inlet and exhaust on opposite sides, individual cam shafts, direct operated valves, cast steel flywheel with integral external fan blades, three disc cork insert clutch, three point gear box support, double chain drive and sheet aluminum body.

The chassis has standard 56-inch tread, 140-inch wheel base on all models, 36-inch wheels equipped with 4½-inch front and 5-inch rear tires except on the flyabout and tourabout, which have all tires of the same size 36 x 4½ inches.

The motor is a 6-cylinder vertical, 4-cycle, water cooled, 5¾-inch bore, 5½-inch stroke, rated at 70 H. P. The exhaust and inlet side of this motor both show that

Fig. 7. Model K, 6-70 Thomas. This is the largest [illegible] of the Thomas line, has seating capacity for seven and a 140-inch wheel base. 36-inch wheels with 4¼ and [illegible] tires. The motor is 6-cylinder 5¾x5½ and is rated at 70 H. P. Details and prices in text.

all of the characteristic features of the four-cylinder have been retained. The only noticeable changes are the necessary lengthening of the crank case, the new inlet and exhaust manifolds, the inlet and outlet water pipes. These last are graduated in size to take care of the increased or decreased flow. The exhaust manifold is provided with two expansion joints, the cylinders being connected in pairs with a slip joint between each pair. Aside from simplifying and cheapening the manifold casting by reducing the percentage of wasters, this allows of unequal expansion. The valve mechanism is the same; pistons, rings, connecting rods, bushings, etc., are all the same as on the four.

THE ENGINE BEARINGS

The crank shaft and connecting rod big end bushings are of a high grade babbitt poured in place over a fixture which insures correct alignment and accurate spacing. All bearings are poured ⅛-inch smaller in diameter. They are then peeved out by hand to within a few thousandths of size and finally are hand scraped with the shaft in place. This makes a very good long-lived bearing, in fact, on the New York-to-Paris car after its return to the factory it was only necessary to take out one of the thin shims equal to about 4-1000 inch on the connecting rods while the case bearings were all right. The cylinders of this motor fire in the order 1, 3, 5, 6, 4, 2.

The transmission is the same as is used on the Four, four speeds forward and reverse selective sliding gear, direct drive on the high with the jack shaft idle and thrown out of mesh. Three point support is used with the single point at the rear. The liberal use of high grade ball bearings has made this a very efficient transmission.

Between the engine and transmission the regular Thomas three disc clutch is used. Between the clutch and the transmission is a combined universal and slip joint of standard design. From the gear box, the transmission of power is from the countershaft sprockets to the rear hubs by double heavy detachable link chains

The front axle is a one piece I-section steel drop forging of liberal size, the spring seats being formed integral with it. The cross steering rod which is behind the axle is bent to conform with the lines of the axle and does not show in the front view at the left of Fig. 8. These two views also show the lines of the new radiator and bonnet, the combination of straight lines to conform with the new straight line body.

The rear axle used last year on the 4 has been retained this year on both the 4 and the 6. This is a heavy I-section steel drop forging 2¾ inches deep by 1¾ inch wide with ¾-inch web, the upper flange being in tension is made larger than the lower. The rear hubs differ from the front

in that they are carried on large annular ball bearings instead of rollers.

Steering is by means of an 18-inch wheel through a gear of the worm and sector type on roller bearings with a ball thrust. The steering sector and shaft are forged integrally and are of chrome nickel steel.

Four brakes are provided, two on the countershaft operated by pedal and two in the rear hubs operated by hand lever. The former are fibre-lined band brakes and have unusual means for adjusting freely. The adjusting screw is carried up very high so as to be more accessible and has a large 2-inch diameter milled or knurled knob so that it may be adjusted purely by hand, no tools being necessary. The total braking-surface is given as 400 square inches.

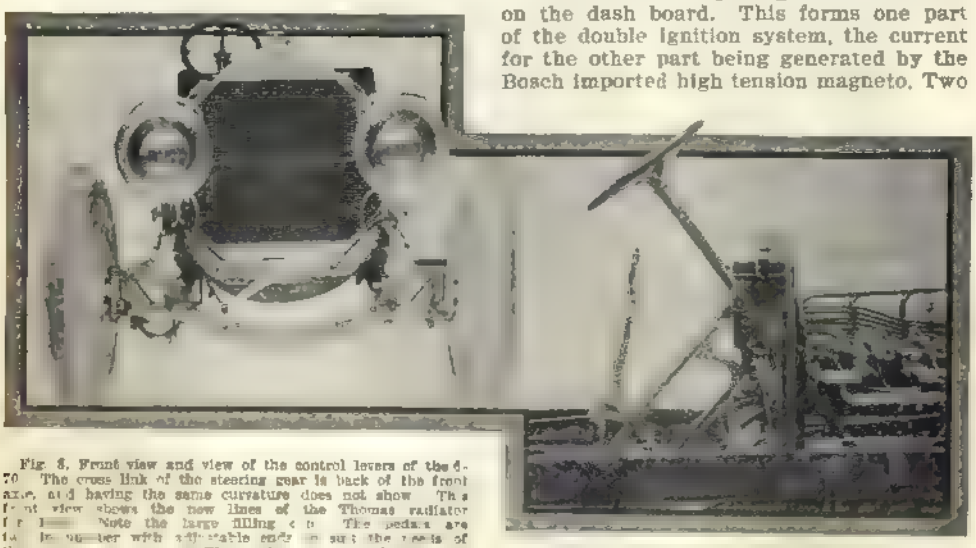


Fig. 8. Front view and view of the control levers of the 6-70. The cross link of the steering gear is back of the front axle, and having the same curvature does not show. This front view shows the new lines of the Thomas radiator [illegible]. Note the large filling [illegible]. The pedals are [illegible] with adjustable ends to suit the needs of the [illegible]. The right [illegible] the counter shaft [illegible] and the left [illegible]. The small accelerator pedal is not shown in this view. The [illegible] hand gear which is shown in forward position operates the emergency brakes [illegible] connected with the clutch. It is of course [illegible]. The other lever shifts the change speed gears [illegible] head direct on the fourth speed. It operates in an H quadrant.

CONTROL OF THE 6-70

Control of the mixture is by the usual throttle lever on top of the hand wheel, also foot accelerator placed between the two pedals of which the right is the countershaft brake and the left the clutch. The spark is also controlled by spark lever on the steering wheel. There are two hand levers as shown at the right of Fig 8. The outer hand lever which in this view, is forward, sets the emergency brakes but first throws out the clutch. A notched quadrant allows setting this in any desired position. The inner lever controls the speeds. On an H-gated quadrant, the forward inside slot is for the first or low speed. This notch is prolonged for the reverse so on all Thomas cars it is necessary to go through low into reverse. Backward in the same inside slot gives second speed, forward in the outer slot produces third and back in the outer slot gives high which is the direct drive.

This view of the control also shows the Atwater-Kent spark generator located on the dash board. This forms one part of the double ignition system, the current for the other part being generated by the Bosch imported high tension magneto. Two sets of plugs are used, one set vertical over the inlet pockets and the other set horizontally but at an angle with the center line of the engine, projecting into the same pocket.

Fig. 7 shows the big 6 with the new close-coupled body. Seats five all facing forward, is painted Thomas red with light red gear or royal blue with straw colored gear and lists at $6,000. The same painting and price apply to the touring car which seats 7, and the tourabout for 3 or 4. The limousine and landaulet at $7,500 seat 7 and the standard colors are maroon and olive gray. The equipment is the same as on the Four.

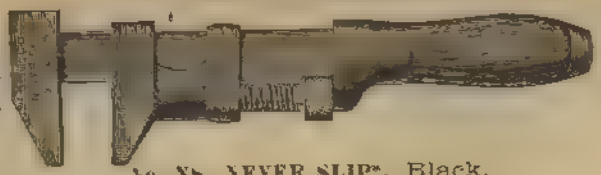
Oliver J. Preston recently resigned from the Long-Critchfield Corporation, of Chicago, to accept the position of advertising manager with The W. H. Kiblinger Co., of Auburn, Ind., makers of the Kiblinger Auto Buggies. An extensive advertising campaign is being planned. The 1909 Kiblinger line includes two and four cylinder, high wheel cars for both pleasure and commercial use.

At the annual stockholders' and directors' meeting of the Anderson Carriage Company, Detroit, Michigan, held October 20th, resolutions were passed increasing the capital stock of the company from $300,000 to $500,000. Plans have been made for the building of 1,000 electric cars and 15,000 horse drawn vehicles, making their total business for 1909 reach the two to three million mark.

TRADE MARKS: "BLACK JACK," AND "NEVERSLIP," REGISTERED.

WRENCHES.

Extra Finish; Wrought Iron Jaws and Adjusting Screw; Polished Malleable Iron Ferrule.



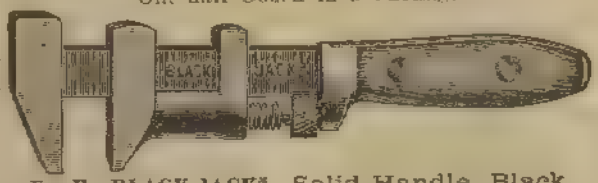
SHANK EXTENDS THROUGH TO END OF HANDLE; Screwed to Cap at end; Plain Hardwood Grip.

No. NS NEVER SLIP®, Black.

Length, inches	6	8	10	12	15
Jaws, Open, inches	1⅛	1½	2	2⅛	2½
Weight per dozen about, lbs	9	16	27	39	57
Per dozen	$10.00	12.00	14.00	17.00	24.00

One-half Dozen in a Package

Forged from Extra Quality Tool Steel; Hardened and Polished Jaws.

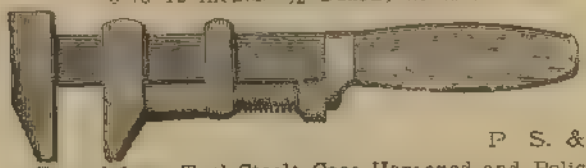


SHANK EXTENDS THROUGH TO END OF HANDLE; Varnished Beechwood Grips riveted to Handle with Two Heavy Iron Rivets; Steel Adjusting Screw.

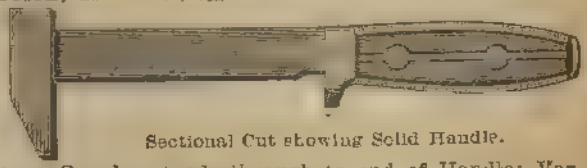
No. B—BLACK JACK®, Solid Handle, Black.

Length, inches	6	8	10	12	15	18	21
Jaws, Open, inches	1	1¼	1¾	2¼	2⅝	3¼	3⅞
Weight per dozen about, lbs	9	16	27	39	57	75	102
Per dozen	$9.00	10.00	12.00	14.00	24.00	30.00	36.00

6 to 12 inches ½ Dozen; 15 and 18 inches, ⅓ Dozen; 21 inches, 1/12 Dozen in a Wood Box.



P. S. & W.



Sectional Cut showing Solid Handle.

Forged from Tool Steel; Case Hardened and Polished Jaws. Shank extends through to end of Handle; Varnished Hardwood Grips riveted to Handle with Two Heavy Iron Rivets; Steel Adjusting Screw.

No. PSW—Solid Handle, Black.

Length, inches	6	8	10	12	15	18	21
Jaws, Open, inches	1	1¼	1¾	2¼	2½	3¼	4
Weight per dozen about, lbs	9	16	27	39	57	75	102
Per dozen	$9.00	10.00	12.00	14.00	24.00	30.00	36.00

6 to 12 inch, ½ dozen, 15 and 18 inch, ⅓ dozen; 21 inch, 1/12 dozen in a Wood Box.

Sectional Cut showing Knife Handle.

COE'S GENUINE, Knife Handle.

Forged from Tool Steel; Case Hardened Jaws; Shank extends through to end of Handle; Polished Malleable Iron Ferrules; Varnished Hardwood Grips riveted to Handle with Heavy Iron Rivet; Steel Adjusting Screw.

No. C—COE'S GENUINE, Black.

Length, inches	6	8	10	12	15	18	21
Jaws, Open, inches	1	1¼	1¾	2¼	2⅝	3¼	[illegible]
Weight per dozen about, lbs.	9	15	25	38	57	78	[illegible]
Per dozen	$9.00	10.00	12.00	14.00	24.00	30.00	36.00

No. CB—COE'S GENUINE, Bright

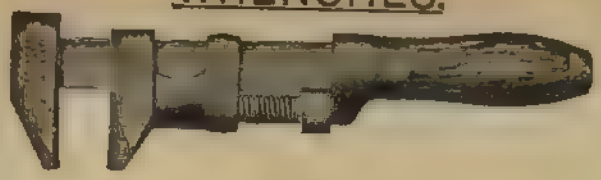
Length, inches	6	8	10	12
Jaws, Open, inches	1	1¼	2¼	2¼
Weight per dozen about, lbs	9	15	25	38
Per dozen	$10.00	11.00	14.00	16.00

6 to 15 inches, ½ Dozen; 18 and 21 inches, ⅓ Dozen in a Package.

Table of Weights and Contents of Cases.

Length, inches	6	8	10	12	15	18	21
In a Case, dozen	6	6	6	6	3	2	1
Weight per Case about, lbs.	60	110	180	260	190	180	[illegible]

WRENCHES.

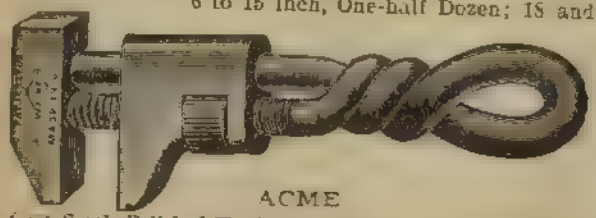


Wrought Iron; Case Hardened Jaws, Shank extends through to end of Handle, Screwed to Cap at end; Polished Malleable Iron Ferrules, Plain Hardwood Grip; Wrought Iron Adjusting Screw

No. 8—Agricultural.

Length, inches	6	8	10	12	15
Jaws, Open, inches	1⅛	1¼	1⅞	2⅜	2½
Weight per dozen about, lbs	9	14	21	[illegible]	41
Per dozen	$10.00	12.00	14.00	17.00	24.00

6 to 15 inch, One-half Dozen; 18 and 21 inch, One-third Dozen in a Package.



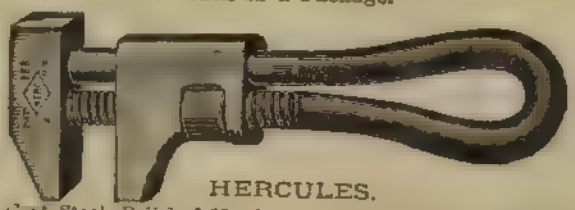
ACME

Cast Steel, Polished Head and Jaws; Wrought Iron Shank, Japanned Finish Twisted Handles; Shank and Handle One Piece extending through Head.

No. A—Acme.

Length, inches	6	8	10	12	15
Jaws, Open, inches	1⅛	1½	1⅞	2⅜	4
Wgt. per doz. about, lbs.	9	14	22	32	52
Per dozen	$10.00	12.00	14.00	17.00	24.00

6 to 12 inches, One-half Dozen in a Wood Box.
15 inches, One-half Dozen in a Package.



HERCULES.

Cast Steel, Polished Head and Jaws; Wrought Iron Shank; Japanned Finish Straight Handle; Shank and Handle One Piece extending through Head.

No. HC Hercules.

Length, inches	6	8	10	12
Jaws, Open, inches	1½	1⅞	2¼	2¾
Weight per dozen about, lbs	9	14	22	32
Per dozen	$10.00	12.00	14.00	17.00

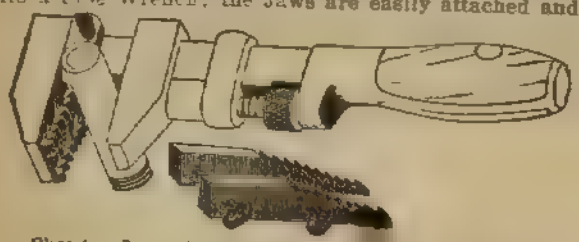
One-half Dozen in a Package.

Table of Weights and Contents of Cases.

Length, inches	[illegible]	8	10	12	15	18	21
In a Case, dozen	6	6	6	6	3	2	1
Agricultural, Weight per Case about, lbs	55	100	145	175	135	...	...
Acme and Hercules, Weight per Case about, lbs	70	105	155	173	135	...	...

EXTRA PIPE JAWS FOR WRENCHES.

By the use of Elgin or Yankee Pipe Jaws any ordinary Pattern Monkey Wrench may be quickly transformed into a Pipe Wrench, the Jaws are easily attached and when adjusted will not slip.



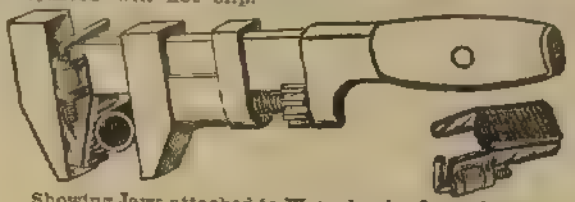
Showing Jaws attached to Wrench; also Jaws alone.

YANKEE.

Forged from Tool Steel, Tempered and Polished; Milled Teeth; Adjustable Steel Thumb Screws.

	Per Dozen
No. 1—Fits all Standard Wrenches, 15 to 21 inches; Length 4 3/16 inches; Width ¾ inch; Thickness 5/16 inch; Weight per dozen about 6 lbs.	$5.00
No. 3—Fits all Standard Wrenches, 6 to 15 inches; Length 3⅛ inches; Width ⅝ inch; Thickness 5/16 inch; Weight per dozen about 3½ lbs.	4.00

One-half Dozen on a Display Card.



Showing Jaws attached to Wrench; also Jaws alone.

ELGIN.

Malleable Iron Frame; Milled Teeth Forged from Tool Steel, Tempered; Frame and Teeth Lacquered; Polished Steel Clamp and Adjusting Screw.

	Per Dozen
No. 10—Fits all Standard Wrenches, 6, 8 and 10 inches; Length 1⅝ inches; Width ¾ inch; Weight per dozen about 2 lbs.	$3.00
No. 20—Fits all Standard Wrenches, 10 and 12 inches; Length 2 inches; Width ¾ inch; Weight per dozen about 2½ lbs.	3.00
No. 30—Fits all Standard Wrenches, 12 and 15 inches; Length 2¼ inches; Width ⅞ inch; Weight per dozen about 3½ lbs.	3.00

One Dozen in a Cardboard Box.

WRENCHES.

14 inch as used on a Nut.

24 inch as used on Pipe.

Combination Pipe and Nut.

No. V & B—Drop Forged from Tool Steel; Hardened and Polished Jaws; Natural Finish Handle.

Length inches	10	14	18	24
Adjustable to Pipe, inches	⅛ to 1	¼ to 1½	⅜ to 2	½ to 2½
Weight each about, lbs	1¼	2¼	4½	7
Each	$2 25	3 00	4.00	6 00

10 and 14 inch. Six in a Package; 18 and 24 inch, Packed Loose.

TRIMO, PIPE.

No. T—Drop Forged from Tool Steel, Polished and Hardened Jaws, Frames and Inserted Jaws; Japanned Finish Nuts and Cast Steel Handle; Inserted Jaw and Frame fastened to Handle by Movable Steel Pin.

Length, Open, inches	6	8	10	14	18	24	36	48
Adjustable to Pipe, inches	⅛ to ½	⅛ to ¾	⅛ to 1	⅛ to 1½	¼ to 2	¼ to 2½	½ to 3½	1 to 5
Weight each about, lbs	½	¾	2	3	5	8	16	25
Each	$2.00	2.00	2.25	3.00	4.00	6.00	12.00	18.00

6 to 24 inch, Six in a Wood Box; 36 and 48 Inch, Packed Loose.

EXTRA PARTS FOR TRIMO WRENCHES.

FRONT JAWS.

Inches	6	8	10	14	18	24	36	48
Weight each about lbs.	⅛	¼	½	⅞	1⅜	2⅛	4½	7¼
Each	$0.67	.67	.75	1.00	1.33	2.00	4 00	6.00

NUTS.

Inches	6	8	10	14	18	24	36	48
Weight each about, lbs.	1/32	1/16	⅛	¼	⅜	⅜	⅝	1
Each	$0.20	.20	.27	.35	.42	.50	.65	.80

INSERTED JAWS.

Inches	6	8	10	14	18	24	36	48
Weight each about, lbs.	1/16	1/16	⅛	¼	¼	½	½	1
Each	$0 25	25	.33	50	.55	.65	1.00	1.25

FRAMES.

Inches	6	8	10	14	18	24	36	48
Weight each about, lbs.	⅛	¼	⅜	½	½	¾	1½	2
Each	$0.25	.25	.33	.45	55	.65	.75	1 00

Packed Loose.

WRENCHES.

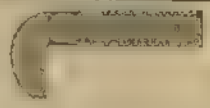
Showing Wood Handle. **Stillson's Pipe.** Showing Iron Handle.

Drop Forged Tool Steel; Polished Shank, Frame and Hardened Jaws; Frame fastened to Jaw by Movable Steel Pin; Jaw adjusted by Steel Nut. Shank extends through Ferrule and Handle and screws on Cap at end. 6 to 14 inch have Ebony Finish Hardwood Handle. 18 to 48 inch have Steel Handle. 6 to 14 inch have Single Spring, 18 to 48 inch have Double Spring; Polished Steel Ferrule and Cap.

Length, open, inches	6	8	10	14	18	24	36	48
Adjustable for Pipe, inches	⅛ to ½	⅛ to ¾	⅛ to 1	¼ to 1½	¼ to 2	¼ to 2½	½ to 3½	1 to 5
Weight each about, lbs.	¼	½	1⅛	2½	4½	7½	15	24
Each	$1.00	2.00	2.25	3.00	4.00	6.00	12.00	18.00

6 to 24 inch Six in a Wood Case. 36 and 48 inch, Packed Loose.

EXTRA JAWS, for STILLSON'S PIPE WRENCHES.



Inches	6	8	10	14	18	24	36	48
Weight each about, lbs.	[illegible]	¼	½	⅞	1⅜	2⅛	4⅛	6⅞
Each	$0.75	.75	.80	1.00	1.33	2.10	4.75	7.25

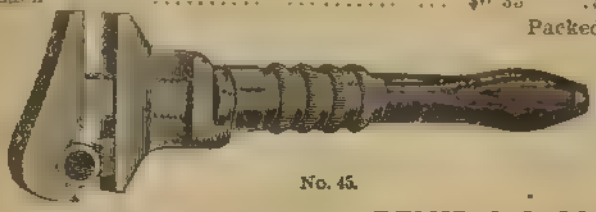
EXTRA NUTS, for STILLSON'S PIPE WRENCHES.

Inches	6	8	10	14	18	24	36	48
Weight each about, lbs.	1/32	1/16	⅛	¼	¼	½	¾	1
Each	$0.11	.11	.14	.17	.22	.35	.55	.95

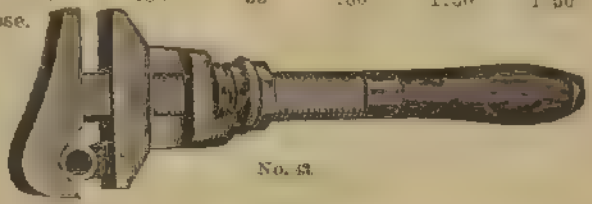
EXTRA FRAMES, for STILLSON'S PIPE WRENCHES.

Length, open, inches	6	8	10	14	18	24	36	48
Weight each about, lbs.	⅛	¼	¼	½	½	¾	1½	2
Each	$0.35	.35	.40	.50	.55	.80	1.30	1.50

Packed Loose.



No. 45.



No. 43.

BEMIS & CALL'S COMBINATION.

Forged from Tool Steel. Polished Shank, Nut and Hardened Jaws; Extra Steel Grip, with Teeth on one end of Jaw for Pipe. Shank extends through Ferrule and Handle and screwed to Cap at end. Polished Ferrule and Cap. Polished Hardwood Handle.

No. 45—Bright, with Long Nut.

Inches	10	12	15	18
Adjustable to Pipe, in.	½ to 1	½ to 1¾	½ to 2	½ to 3
Wgt. doz. about, lbs.	26	38	54	84
Per dozen	$25.25	28.50	40.50	72.00

No. 43—Bright, with Short Nut.

Inches	10	12	15	18
Adjustable to Pipe, in.	½ to 1	½ to 1¾	½ to 2	½ to 3
Wgt. doz. about, lbs.	24½	36	50	81
Per dozen	$23.00	26.00	37.00	66.00

10 to 15 inch, One-half Dozen in a Wood Box; 18 inch, One-sixth Dozen in a Package.

EXTRA DOGS OR GRIPS, NEW STYLE, WITH PIN, for B. & C. COMBINATION WRENCHES.

Inches	10	12	15
Weight each about, lbs.	⅛	⅛	⅛
Each	$0.25	.30	.35

EXTRA DOGS OR GRIPS, OLD STYLE, WITH SCREW for B. & C. COMBINATION WRENCHES.

Inches	10	12	15
Weight each about, lbs.	⅛	⅛	⅛
Each	$0.25	.30	.35

Packed Loose.

When ordering Extra Dogs for B. & C. Combination Wrenches invariably specify what kind are wanted, viz.: "Old Style," with Screws; or "New Style," with Pins.

BICYCLE WRENCHES.

ESSEX*.

Per Dozen

No. E—NICKEL PLATED; Extra Quality, Cast Steel; Case Hardened Jaws; Front Jaw and Handle One Piece; Length, Closed, 5½ inches; Jaws Open 1 1/16 inch; Weight per dozen about 4½ lbs. $10.00

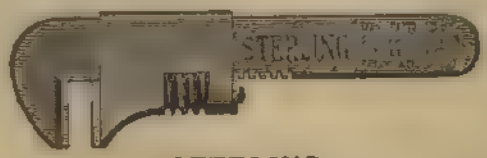
One-half Dozen in a Cardboard Box.

QUEEN.

Per Dozen

No. 98—FROSTED FINISH Cast Steel; Case Hardened Jaws; Front Jaw and Handle One Piece; Length, Closed, 5½ inches; Jaws, Open, 1⅜ inches; Weight per dozen about 4½ lbs.. $6.00

One Dozen in a Cardboard Box.

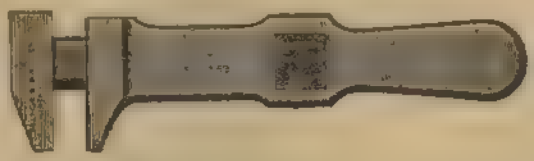


STERLING.

Per Dozen

No. 8—NICKEL PLATED Cast Steel; Case Hardened Jaws; Front Jaw and Handle One Piece; Length, Closed, 5 inches; Jaws, Open, 1 7/16 inches; Weight per dozen about 3¾ lbs $9.00

One-twelfth Dozen in a Cardboard Box.



BILLINGS' AND SPENCER'S.

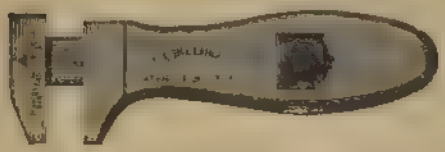
Per Dozen

No. 97—NICKEL PLATED Cast Steel; Case Hardened Jaws; Front Jaw and Bar One Piece, fitting into Hollow Handle; Length, Closed, 4¼ inches; Jaws, Open, 1½ inches; Weight per dozen about 4½ lbs. $11.00

Per Dozen

No. 88—NATURAL FINISH Cast Steel; Case Hardened Jaws; Front Jaw and Bar One Piece, fitting into Hollow Handle; Bar Graduated on one side up to 1½ inches in 8ths, 16ths and 32nds; Length, Closed, 6 inches; Jaws, Open, 2 inches; Weight per dozen about 9 lbs. $12.00

One-twelfth Dozen in a Cardboard Box.



BILLINGS'.

Cast Steel, Case Hardened Jaws; Front Jaw and Bar One Piece, fitting into Hollow Handle; Bar Graduated up to 1 inch in 8ths, 16ths and 32nds; Length, Closed, 4¼ inches; Jaws, Open, 1½ inches.

Per Dozen

No. 1—NATURAL FINISH $9.00

No. 2—NICKEL PLATED 10.00

One-twelfth Dozen in a Cardboard Box.
Weight per Dozen about 6 lbs.

BAXTER'S, Adjustable, Bright.

FULL POLISHED Cast Steel; Hardened Jaws; Knurled Adjusting Screw in Center, which Adjusts Jaws at both ends at once.

No. BA.

Length, Closed, inches	4	6	8
Jaws, Open, inches	7/8	1½	1¼
Weight per dozen about, lbs	7½	10	17
Per dozen	$6.00	9.00	12.00

One-half Dozen in a Package.

TRADE MARKS: "SURE GRIP" AND "DUCK BILL," REGISTERED.

WRENCHES.

SURE GRIP*.

Forged from Special Crucible Steel; Oil Tempered; Milled Teeth.

Per Dozen

No. 15—LENGTH 4 INCHES; NATURAL FINISH; Holds Pipe ½ inch and Smaller; Openings in Handle suitable to hold Nuts, Sizes ¼, 5/16 and ⅜ inch; Screw Driver End 5/16 inch Wide at Point, Weight per dozen about 1½ lbs..... $4.00

LENGTH 5½ INCHES; Holds Pipe ⅝ inch and Smaller, Openings in Handle suitable to hold Nuts Sizes ¼, ⅜, ½, ⅝ and ¾ inch. Per Dozen

No. 20—NATURAL FINISH..... $4.00

No. 30—NICKEL PLATED 5.00

Weight per Dozen about 3¾ lbs.

One Dozen in a Cardboard Box.

SURE GRIP*.

Forged from Special Crucible Steel, Tempered in Oil; Milled Teeth.

Natural Finish, Raised Surface; Polished.

Per Dozen

No. 40—LENGTH 5½ INCHES, Holds Pipe ⅜ inch and Smaller, Openings in Handle suitable to hold Nuts, Sizes ¼, ⅜, ½, ⅝ and ¾ inch, Weight per dozen about 4 lbs..... $5.00

One Dozen in a Cardboard Box.

No. 50—LENGTH 7 INCHES; Holds Pipe ⅝ to ¾ inch; Openings in Handle suitable to hold Nuts, Sizes ⅜, ½, ⅝, ¾ and ⅞ inch; Weight per dozen about 9 lbs..... 10.00

One-half Dozen in a Cardboard Box.

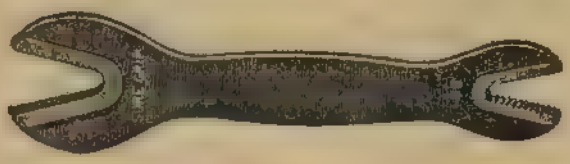
Natural Finish; Raised Surface; Polished.

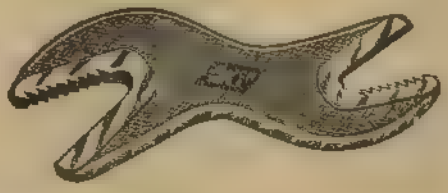
Per Dozen

No. 60—LENGTH 9 INCHES; Holds Pipe ⅝ to ¾ inch. Weight per dozen about 12 lbs..... $12.00

No. 70—LENGTH 16 INCHES; Holds Pipe ½ to 1¼ inches; Weight per dozen about 39 lbs.. 24.00

One-half Dozen in a Cardboard Box.





SURE GRIP*.

Forged from Special Crucible Steel, Tempered in Oil Milled Teeth

Per Dozen

No. 80—LENGTH 10 INCHES; NATURAL FINISH; Raised Surface Polished; Holds Pipe ¾ inch and Smaller; Weight per dozen about 15 lbs.....$18.00

DUCK BILL*.

Forged from Extra Quality Tool Steel, Oil Tempered, Natural Finish Knurled Body, Raised Surface of Jaws and Edges Nickel Plated; Milled Teeth on One Jaw of each End.

Per Dozen

No. JR—LENGTH 5 INCHES; Holds Nuts or Pipe ¼ to ⅜ inch, Weight per dozen about 6 lbs. $5.00

No. SR—LENGTH 7 INCHES; Holds Nuts or Pipe ¼ to 1¼ inches; Weight per dozen about 12 lbs..... 6.75

One-half Dozen in a Cardboard Box.

WRENCHES.

ALWAYS READY.

Forged from Tool Steel; Full Nickel Plated; Hardened Jaws, with Milled Teeth on One Jaw at each End.

Nos.	1A	2A
Length over all, inches	5	7
Holds Nuts or Pipe, inches	¼ to ¾	¼ to 1¼
Weight per dozen about, lbs.	6	10½
Per dozen	$5 00	6.75

RATCHET.

Full Polished; Heavy Steel Wire Handle; Hardened Steel Die, with Notched Groove making it Ratchet; Especially Adapted for Automobile Tire Lugs.

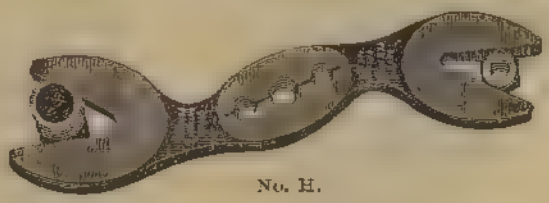
SQUARE OPENING

Nos.	316/S	416/S	516/S
Length, inches	5	5	5
Size of Opening, inches	⅜	7/16	½
Weight per dozen about, lbs	1½	1½	1½
Per dozen	$9 00	9 00	9.00

HEXAGONAL OPENING.

Nos.	816/H	916/H	1016/H	1216/H	1416/H
Length, inches	5	5	5	5	8¼
Size Opening, inches.	½	9/16	⅝	¾	⅞
Wgt., doz. about, lbs.	1½	1½	1½	2	[illegible]
Per dozen	$9.00	9.00	9.00	10.00	15.00

Packed Loose.



No. H.

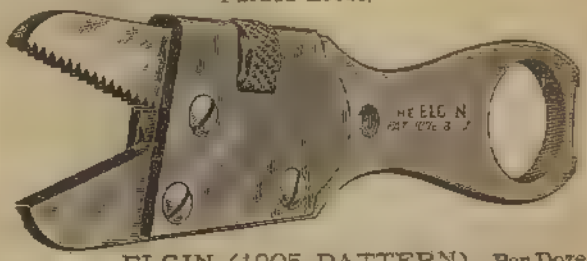
Forged from Tool Steel; Combination Nut and Pipe Wrench and Thread Cutter; Tempered and Hardened Jaws and Thread Cutters; Milled Teeth on One Jaw on each End; Holds Nut or Pipe ⅝ to 1 inch; Holds Round Iron from 5/16 to 1⅛ inches; Thread Cutters will Cut ½x 13, ⅜x16, 5/16x18 Threads.

Per Dozen

No. H—GENUINE HAWKEYE; GUN METAL FINISH; Length over all 8 inches $18.00

Weight per Dozen about 12 lbs.

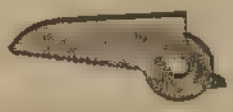
One-half Dozen in a Cardboard Box.



ELGIN (1905 PATTERN). Per Dozen

No. AE—ADJUSTABLE; LENGTH 7 INCHES; Cast Steel, Full Nickel Plated; Hardened Jaws, with Milled Teeth; Jaws can be Closed by Adjusting Screw or by pressing on Upper Jaw; Lower Jaw and Handle One Piece, Reinforced at Jaws by Heavy Steel Plate, Screwed to Body; Hole in Handle for Threading Attachment, as shown below; Holds Pipe, all Sizes, up to ¾ inch, and Nuts up to 1⅛ inch; Particularly adapted for use in corners and cramped places; Weight per dozen about 7½ lbs. $12.00

One-twelfth Dozen in a Cardboard Box.



Showing Extra Jaw for Elgin.

Showing Elgin Threading Attachment.

Showing Extra Dies for Elgin Threading Attachment.

Per Dozen

No. EJ—Extra Jaws for No. AE Wrench; Same Finish as Wrench; Length 2 inches; Weight per dozen about 1 lb. $3.00

No. ETA—Extra Threading Attachments for No. AE Wrench; Nickel Plated; Complete with One Natural Finish Tool Steel Hardened Die, in any of the Sizes as Listed Below. By Pressing on Small Thumb Knob, Die is made to work Ratchet; Used for Threading Bolts or Repairing Damaged Threads on Bolts; Length 3½ inches; Weight per dozen about 1 lb. 12.00

No. ED—Extra Dies for No. ETA Threading Attachment; Tool Steel, Natural Finish, Hardened; Standard Carriage Bolts Threads in the following Sizes ¼, 5/16, ⅜, 7/16 and ½ inch; Weight per dozen about 1 lb. 6.00

One Dozen in a Cardboard Box.

Specify Size of Die when Ordering.

TRADE MARK: "UTILITY," REGISTERED.

WRENCHES.

ADJUSTABLE "S."

Wescott Pattern, Polished and Hardened Cast Steel Jaws. Japanned Finish Handle; Knurled Adjusting Screw; Sliding Jaw works on Grooved Surface in Hollow Part of Head.

No. WP—ADJUSTABLE.

Length, inches	6	8	10	12	14
Extreme Width of Opening, inches	¾	1	1⅜	1⅝	2
Weight per dozen about, lbs.	5½	18	23	37	61
Per dozen	$7.20	9.00	12.00	15.00	21.00

One-half Dozen in a Wood Box.

SIMMONS' UTILITY*.

No. 6000—Malleable Iron, Polished; 7 inches Long; 5/16, 7/16, ½, ⅝, ¾, and 15/16 inch Openings. Weight per dozen about 9 lbs. ..... Per Dozen $1.85

"S," Malleable Iron.

Nos.	2340C	2340A
Length, inches	9	10½
Openings, inches	5/16, ⅜, ½, ¾, ⅞, 1⅛	½, ⅝, ¾, ⅞, 1, 1¼
Wgt. doz. abt. lbs	10½	13
Per lb	$0.15	15

No.	2340B
Length, inches	12
Openings, inches	⅝, ¾, ⅞, 1⅛, 1¼, 1½
Weight per dozen about, lbs.	15
Per lb.	$0.15

MACHINE.

Malleable Iron, Polished.

Nos.	2335B	2335D
Length, inches	6½	8
Openings, inches	½, ⅝	¾, ⅞
Weight per dozen about, lbs.	5	8
Per lb.	$0.15	.15

Carriage, Extra Deep; Malleable Iron, Polished.

Nos.	2320B	2320C	2320D	2320E	2320F	2320G
Length, inches	8	8½	9	9	10	10¼
Axle Nut, inches	⅞	1	1⅛	1¼	1⅜	1½
Openings, inches	5/16, ⅜, ½	5/16, ⅜, ½	5/16, ⅜, ½	5/16, ⅜, ½	5/16, ⅜, ½	5/16, ⅜, ½
Weight per dozen about, lbs.	8	8½	9	9	10	10¼
Per pound	$0.15	.15	.15	.15	.15	.15

Packed Loose

GAMES—Continued

No. 126

No.		Per doz.
126	Pepper, a new card game	$4 00

No. 127

No.		Per doz.
127	Bible game, gives general information regarding the Scriptures, size 5x6¾, 1 dozen in package	$4 00
128	Peter Coddle, best, size 5x6½, 1 dozen in package,	4 00
128½	Hysterry Up to Date, card game, carefully edited, 48 cards size 3½x7, 1 dozen in package	4 00

No 952

No		Per doz.
129	Jack Straws, best, size 5x6¾, 1 dozen in package,	$4 00
952	Jack Straws, new edition	4 00
130½	"Jacks" a card game similar to game of hearts, but adapted for children	4 00

No.		Per doz.
131½	Jungle a right new card game from Chicago comical animal illustrations	4 00

No		Per doz
791	Some'r Set, highly enameled cards, fancy telescope case, the popular game for a popular price	$4 00
791½	Gilt edge edition	7 50

No. 132½

No.		Per doz.
132½	Squashville Fair, new card game	$4 00
133	Black Cat Fortune Telling Card Game, 1 dozen in package	4 00
133½	Authors, petite edition de luxe, portraits of authors, fine half-tone engravings, 1 dozen in package	4 00
134	Theatre Game	4 00
134½	Farmyard, new card game	4 00

No. 136

No.		Per doz.
136	Picture Reading Card Game, bright colors, cards with emblems and pictures, such as a child understands, size of box 5x6½ inches	$4 00

No. 136½

No.		Per doz.
136½	Hidden Titles Card Game, picture conundrums, bright colors, size of box, 5x6½ inches	$4 00

No.		Per doz.
137	Kanoona Indian pictures, size of box 5x6½ inches bright colors	$4 00
139	Authors Up to Date, a new set of up-to-date authors 14 books of the most popular writers of the present time, handsome new half-tones, 56 cards, 1 dozen in package	4 00
140	Auction Letters	4 00
173	Fifty-Up	4 00

No.		Per doz.
141	Pi-dy Wi-dy Card, Nice Insidy, game for little children very jolly, neatly illustrated, size of box 5x6½ inches	$4 00

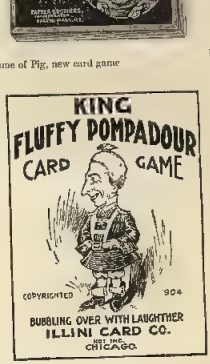
No. 832

No. 792

No.		Per doz.
832	Buster Brown Game, 40 cards, illustrated, size of box 5¾x7¾	$4 00
792	Gypsy Witch Fortune Telling Playing cards, Madame La Normand, fifty-three cards super-enameled, 1 dozen in package	4 00

No.		Per doz.
836	Teddy Bear Card Game	$4 00

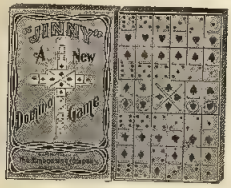
No.		Per doz.
132	Game of Pig, new card game	$4 00



No.		Per doz.
798	King Fluffy Pompadour Card Game, enameled cards printed in 4 colors for three or more players	$4 00
392	Madame Morrow's Fortune Telling Cards, this is a simple fortune telling game, the labels are in full colors, gold, and varnished, size 4½x6¾, 1 dozen in package	4 00

GAMES Continued

No. 847 Phono-forms, shorthand word building, sound forms a concise and easy method of learning the art of stenotypic writing — Per doz $1 50



No. 794 Game of Jinks — Per doz $4 00
796 Staff Dominoes game, special combination box and board — 3 00

No. 493 Game of Nations or Quakes Whist, 1 dozen in package — Per doz $6 00

No.		Per doz.
153	Sewing cards 6 kinds assorted	$3 50
883	Animal sewing cards	4 00
884	Soldiers and sailors sewing cards	4 00
885	Flower sewing cards	4 00
886	Fish sewing cards	4 00
887	Picture sewing cards	4 00
888	Patriotic sewing cards	4 00

No. 868 Hidden Book Titles, a society card game, 15 cards each card bearing a rebus illustrating the title of a book, original drawings, beautifully boxed — Per doz $4 00

No. 889 Baby's sewing kit — Per doz $1 50
892 Painting outfit — 4 00

No. 893 Banner crayon outfit — Per doz $1 50

No. 898 Beaded peg board — Per doz. $4 00

No. 899 Shadowgraph, for making shadows with hands and arms on the wall or screen, size 9½x16½ — Per doz. $8 00

No. 929

No.		Per doz.
920	Little folk's color set	$ 8 00
929	Little folk's color kit, 2 trays of aero-moist paint of seven colors each, 6 tubes of moist color, 8 wax crayons, 8 stencils, 6 large colored copies and outlines for painting, 30 embossed cards and 12 outline cards for coloring, in handsome box, size 18x21	20 00
930	Kindergarten goods, an assortment of popular kindergarten materials, sewing cards, perforated cards, toy needles, etc., in an attractive box, size 14x18	8 00

No. 927 Bradley's drawing set, net — Per set $18 00

No. 831 Our Donkey Party on cloth, colored, size of sheet 36x36, each in envelope — Per doz $2 00
844 Buster Brown Party on cloth, size of sheet 36x36 inches — 4 00

No. 748 Wheel of Fortune — Per doz. $4 00

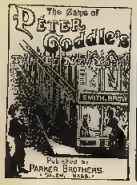
No. 746 Minor Modeler — Per doz. $4 00

No. 758 Razzle Dazzle novelty — Per doz. $4 00

No.		Per doz
1016	Crokinole and French Checkers, board game, crokinole box adapted to a table game, size 15x15	$4 00
605	Parlor series, 6 kinds, board games these games are first-class in quality and design and cover a moderate range of cost, the labels inside and outside are in full colors and gold and varnished, doz 14½x15½, ½ dozen in package	3 00
118	Assortment, board games, Fort Arthur series, 4 assorted contains, "Night Before Christmas," "Hen that Laid the Golden Egg," and "Train for Boston," size of box 15x17	4 00
426	Messenger Boy board game	4 00

CARD GAMES, BOARD GAMES, LARGE GAME BOARDS, ETC.

We do not break packages of games at $1.80 per dozen list or under



No. 100

No.		Per doz.
100	Old Maid Series, 12 kinds, containing Authors, Old Maid, Peter Coddle, Heads and Tails, Snap, and Lotto, etc., 1 dozen in package, size of box 3¾x4½	$0 70
375	Punch and Judy Series, 4 kinds, assorted, containing Snap, Punch and Judy, Shoot that Hat, etc., 1 dozen in package, each game contains 70 colored cards	70

No. 370

No.		Per doz.
370	Nickle Series, 6 kinds, containing Authors, Cousin Peter's Old Maid, Popular Quotations, War of Words, and Old Bachelor, 1 dozen in package, size of box 3x4	$0 80

No. 375½

No.		Per doz.
375½	Peter Coddle Series, containing Peter Coddle, Game of Letters and Game of Authors, 1 dozen in package, size of box 3x4	$0 70
1600	Brownie Series, 3 kinds, containing Brownies Cousins, Fortune Teller and Peter Coddle, 1 dozen in package, size of box 3¾x4½	70
1601	Standard Series, 4 kinds, containing Jamboree, Snap, Old Maid and Authors, 1 dozen in package, size of box 3x4	70
100½	Going to the Fire Series, board Games, 12 kinds, containing Going to the Fire, Buffalo Bill, Bears in the Woods, Golf, Parlor Bowling, etc., 1 dozen in package, size of box 3x4	80
372A	Old Maid Series, 3 kinds, assorted, Illustrated Authors, Old Maid No. 2, and Peter Coddle's Trip to New York, 1 dozen in package, size 4x5	1 50
101	Anagram Series, 6 kinds, Letters, Old Maid, Authors, Snap, Peter Coddle, Jack Straws, extra quality cards, 1 dozen in package, size 4x5	1 50
372	Authors, Illustrated, containing 48 cards with portrait of a celebrated writer together with a list of his works, size 4x5	1 50
882	Card games, Tip Top Series, 12 kinds, 1 dozen in package, size 4x5	1 50

No. 103

No. 347

No.		Per doz.
837	In the Pen and Out Again puzzle box, 4 inches square, 3½x5, (cover board capsules) put in the pen	$1 50
103	Peter Peter Series, board Games, 12 kinds, containing Peter Peter Pumpkin Eater, Old Woman Who Lived in a Shoe, Little Green Pig, Mary, Contrary, Jack Horner, Athletic Sports, Bicycling, Old King Cole, Jack Sprat, Gossiping Man, Little Bo Peep, Steeple Chase, 1 dozen in package, size of box 3x4½	1 50
117	Mother's Help, contains paper doll and dresses ready to cut out, also pieces of Lessons in several colors, 1 dozen in package	1 50
5160	Board Games, Pear Series, 6 kinds, ½ dozen in package, assorted	1 50

No. 382

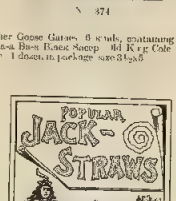
No.		Per doz.
382	Wonder Series, 6 kinds, 48 colored cards, Punch and Judy, Humpty Dumpty, I Don't Know, etc., size 5¼x3¾, 1 dozen in package	$1 60
122	Letters, a new low-priced edition "Game of Letters and Anagrams," size of box 4x5¾	1 50
123	Snap, new form at low price, size of box 4x5¾, 1 dozen in package	1 50

No. 374

No.		Per doz.
374	Mother Goose Games, 6 kinds, containing Little Jack Horner, Baa Baa Black Sheep, Old King Cole, Puss in the Corner, etc., 1 dozen in package, size 3½x5	$1 50

No. 390

No.		Per doz.
390	Game series, 4 kinds, 24 cards on extra heavy board, the games are Conical Snap, Anthony's Antics, Slip Shoe Sloram, Hans and the Billy Goat, size 5¾x8¼, 1 dozen in package	$1 60
1602	6 kinds, containing Paws and Claws, Hidden Author, Butterfly Stop, Kittens, Authors and Snap, size of box 7x7½, 1 dozen in package	1 50
1603	Fossilo Series, 6 kinds, containing spider and fly, Sing a Song of Sixpence, Wing, Illustrated Authors, Old Maid, and Peter Coddle, size of box 4½x6, 1 dozen in package	1 50



No. 121

No.		Per doz.
118	Old Maid, Parker Bros.' edition, size 4x5¾, 1 dozen in package	$1 50
119	Authors, consisting of 30 cards, illustrated with portraits of 10 distinguished authors, size 4x5¾, 1 dozen in package	1 50
120	Peter Coddle, a reading game, a new and improved edition of this old and well-known game, size 4x5¾, 1 dozen in package	1 50
121	10-cent Jackstraws, size of box 4x5¾, 1 dozen in package	1 50

No.		Per doz.
109	Megaphone Return Ball	$1 50

GAMES -Continued

No. Per doz.
717 Magnetic Jack Straws, put up in a handsome box, complete set with 2 magnets, packed 1 dozen in package 00

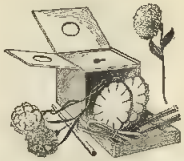
No. Per doz.
755 Kan-U-Katch, each in package $4 00

No. Per doz.
143 Pillow Dex, four balloons $4 00
147 Extra balloons for above
144 Pillow Dex, contains eight best quality Pillow Dex balloons, with oak blocks 8 00

No. Per doz.
958 Bradley's transparent color outfit, pasteboard box, size 8⅞x6⅝, 1 dozen in package $1 80

No. Per doz.
959 Transparent paper tablets, for teaching principles of drawing, size 7½x9 12 designs $1 50
960 Same as above, size 9x12, 16 designs 4 00

Per copy
Rules for playing the "New Scientific Domino Game of Forty-two," small 16mo, embossed, gilt paper cover, silk cord and tassel $0 30



No. Per doz.
727 The Magic Pioneer, amusement in flower making outfit complete with material for 4 dozen flowers $4 00

No. Per doz.
165 Animal masks for children's parties, consists of six masks of cardboard to cut out, making realistic masks of a variety of animals.. . . $4 00

No. Per doz.
165 Ring the pin game, mounted screen with brass hooks for counting, fitted with round bone rings, size 6½x9½ inches $4 00

DIABOLO

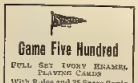
The Great French Game

No. Per doz.
238 Wizard set, wooden top good size two sticks, and handles, in neat box $ 50
238½ Wizard set hardwood bobbin with rubber tires, four heavy finished sticks, in attractive box . 4 00
239 Wizard set, four good sticks solid hardwood highly finished top with rubber tires in attractive box . . 8 00
240 Genuine Diabolo. Finely finished bobbin with best rubber cap ends, hemple cords (four sticks) 16 00
240½ Diabolo set, philippart patent of June 5, 1906, bobbin with applied steel cylinder rubber caps, two pair flexible sticks 25 00
241 Philippart Diabolo set, two pair handsome sticks patented bobbin with full rubber ends 33 60
241½ Amateur Diabolo set, two pair fine bamboo sticks, cord fastened . . . 57 60
242 Fontainebleau Diabolo set, celluloid bobbin, two pair very fine sticks, extra quality throughout 100 00
243 De Luxe Diabolo set, finest Diabolo made, handsome wooden case, felt lined, Fontainebleau bobbin and two pair silver mounted sticks elaborate and practical . 190 00

No. No. 2-6 Per doz.
244 Extra Wizard tops $4 00
245 Extra genuine Diabolo tops . . . 18 00
246 Extra genuine Diabolo tops, celluloid 36 00

No. Per doz.
7685 Folding Doll House, size of box 17x17 inches, the house measures 10x15 inches on the ground and when set up is 19½ inches high, two stories, strongly hinged, to be folded flat $16 00

GAMES—Continued

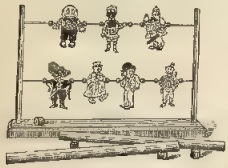


No.		Per doz.
876	Game of Five Hundred	$4 00
878	Game of Pinochle	4 00

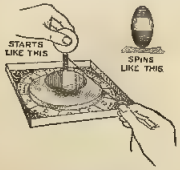
No.		Per doz.
769	Game of Panic, sixty-five cards, representing eight different kinds of Wall street stocks, comprising a miniature stock exchange	$4 00

No.		Per doz.
866	Game of Cribbage, pocket edition, full deck finest enameled playing cards, complete rules and board for scoring, a complete cribbage outfit in compact shape	$4 00

No.		Per doz.
845	Bird Center Etiquette Game, 48 ivory enameled cards from original drawings by Geo. D. McCutcheon, printed in colors	$4 00
953	Kornelia Kinks at Jamestown Fair	4 00
925	W. low McCarthy's Pig card game	4 00



No.		Per doz.
923	Coney Island Target	$4 00

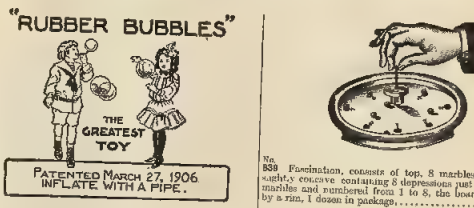


No. 154

No.		Per doz.
154	Spinning Egg Game, new spinning novelty with a scoring device, size 9½ x 9½ inches	$4 00
926	Egg and Spoon Race, novelty game	4 00

FIRESIDE SERIES

No.		Per doz.
1100	Strange People	$3 50
1108	White Squadron	3 50
1111	Flags, showing the national flags of all the principal countries of the world, the flags are reproduced in many colors	3 50
1113	In Castle Land, one of the most beautiful games ever issued, has some half-tone illustrations of the Old World's most famous castles, picturesque, entertaining and instructive. Lightly finished	3 50
1114	Individual and Progressive Nine, an entirely new and amusing game for individual and progressive play, can be played at first sight, contains cards for four trades or six trade players	4 32
1117	Artists The world's most popular and famous paintings, beautiful chromogravure reproductions, a fine game	4 32
1118	In Dixie Land, House sketches from the sunny South, chromogravure illustrations of a happy people	4 32
1120	Young Folks Favorite Authors, such favorites as Pansy, Louisa M. Alcott, Oliver Optic, Eugene Field, etc	3 30
1122	Yellowstone, illustrating the Yellowstone National Park	4 32
1123	Poems, illustrations of the works of popular poets, put up in gold-stamped leatherette cases	4 32
1124	New Testament Game, contains beautiful illustrations, from old masters, of the life of Christ	$4 32
1128	Flowers, illustrations of many of the garden favorites in colors, woven into an interesting and enjoyable game	4 32
1127	Birds, a series of 52 illustrations of popular birds in colors true to life, a beautiful and fascinating game	4 32
1129	Mythology, handsome illustrations of Greek and Roman myths	4 32
1130	Shakespeare, illustrations and quotations from Shakespeare's best work	4 32
1135	Game of Addition and Subtraction for third, fourth and fifth years	3 50
1136	Game of Multiplication and Division, for third, fourth, and fifth years	3 50
1137	Games of Fractions adapted for second to eighth years	3 50
1138	Word Game, for upper primary, second, and third years	3 50
1139	Domestic Animals, for primary grades	3 50
1140	Wild Animals, for fourth to seventh years	3 50
1141	Our National Life, intermediate grades	3 50
1142	Constructive Geometry, intermediate grades	3 50



No.		Per doz.
1052	Rubber Bubbles, with pipe, blows rubber bubble 6 inches in diameter, strong and durable	$4 00
1023	Bubbles	4 00

No.		Per doz.
838	Fascination, consists of top, 8 marbles and a board slightly concave containing 8 depressions just the size of the marbles and numbered from 1 to 8, the board is protected by a rim, 1 dozen in package	$4 00

No.		Per doz.
731	Jack O'Lantern, for Hallowe'en parties	$4 00

No. 161

No.		Per doz.
161	Pocket Ball	$4 00

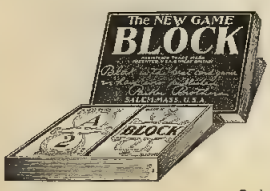
GAMES Continued

No. 205 "I'm a Millionaire," a take off on metropolitan society enameled, round cornered cards, with 100 gilt discs . Per doz. $8 00

No. 207 Soo Solitaires, ten excellent games of Solitaires, played with pack of cards, full rules and explanations. . Per doz. $8 00

No. 324 Game of Flinch, grade No 1, 150 cards, fine enameled stock, in neat box with rules and explanations, 1 dozen in box $7 50
325 Game of Flinch 150 cards, best stock, gilt edge 12 00

No. 174 Pit, new bull and bear edition, 65 finely enameled cards . . . . . Per doz. $8 00



No. 202 Block, new . . Per doz. $8 00

No. 206 Sherlock Holmes, highly enameled cards . Per doz. $8 00

No. 873 Game of Raffles, 54 highly enameled cards for from two to eight players, particularly adapted for progressive parties, complete in very attractive box with score cards and rules $7 50

No. 788 Bunco. . . . . Per doz. $8 00

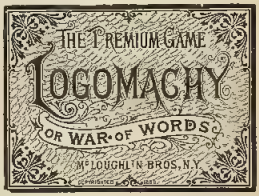
No. 793 Game of Din, 80 finest enameled cards, representing 10 different animals and fowls of the barn yard, subdivided into 8 suits . . . . . Per doz. $8 00

No. 799 "Wiggs," the cabbage game, all who have read Mrs. Wiggs of the Cabbage Patch will want to play this game . . . . . Per doz. $8 00

No. 4700 The Little Colonel Card Game, cards all in full color size of box 5x6½ inches . . . . . Per doz. $8 00

No. 193 "Quien Sabe," Mexican-Spanish, meaning "Who Knows," a cowboy game, fine enameled cards . Per doz. $8 00

No. 191 Rook Cards, for playing ten good games, "Rook," "Tuxedo," "High 14," "Simplified Cribbage," "Flip," "Panjandum," "I Doubt It," etc fine enameled cards with handsome faces . . . . . Per doz. $8 00
192 Jin-Ken-Po, meaning "One-Two-Three," a genuine Japanese card game, consists of a pack of fine enameled cards of three sets 8 00



No. 416 Logomachy or War of Words, leatherette box, ½ dozen in package. . . . . Per doz. $8 00

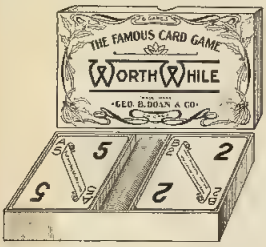
GAMES — Continued

No. 867 Fan Craze The great baseball game art series, beautiful half-tone portraits of national and American League baseball players $8 00

No. 875 Game of Bridge Whist, includes 2 packs ivory enameled playing cards, with English rules and 25 score cards, complete $8 00

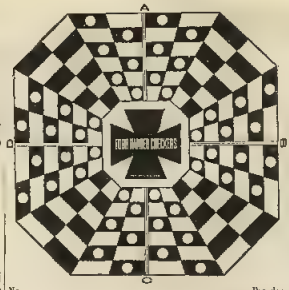
THE BEST—THE LATEST
FOR HOME FOR SOCIAL
AMUSEMENT ENTERTAINMENT

No. 877 The Nifty Card Game, 60 cards of fine quality in two colors, with rules for playing two games, Nifty and The Nifty Building Game" $8 00



No. 708 Seven excellent games for one, two, three, four, five, or more people 68 highly enameled cards in 5 colors handsome box 150 three colored counters 60 witty toasts and sayings with each game each game wrapped in silk paper $8 00

No. 1046 Dancing Man Novelty, perfect clog dancer wood, substantially made $8 00
7181 Little Folks' Farm Yard, pictures to set up 5 50

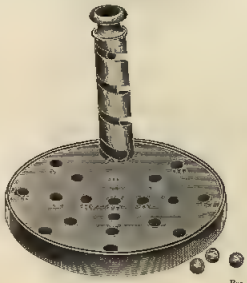


No. 1059 Four-handed Checkers, game of checkers so arranged that four people may play, the old game of checkers adapted to new rules board complete set 48 checkers $8 00

No. 237

No. 237 Pop-in-Taw a rollsin' game played with steel balls, which are picked up on small wooden shovels and deposited into cone-like receptacles for two, three or four players $8 00

No. 7163 Our Dollies, How to Dress Them size 9½x12 inches, the dolls to take apart so that a great variety and combination of dresses can be made $5 50
737 Tiny Tots Post Card, 2 kinds 4 00
738 Christmas Card Painter, 3 kinds 8 00
741 Our Dollies 8 00
742 Little Ones' Theatre 8 00
743 Bright Days Play Box 8 00
843 A B C Pictures, mounted on blocks 4 00



No. 1039 Roulette Marble Game $16 00

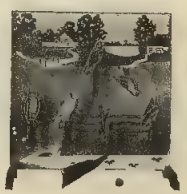
No. 1053 Base Ball Game $8 00

FISH POND

No. 157 Fish Pond, Parker Bros. Edition $4 00
625 Home Fish Pond This game contains 6 fish and 2 poles at 1 lines size of box 12x12 1 60
636 Fish Pond, improved, large size 8 x18 8 00
636½ Fish Pond, improved, size 6x1 4 00
637 Magnetic Fish Pond 21 60

No. 180 Divers, a novelty in the fish pond family $8 00

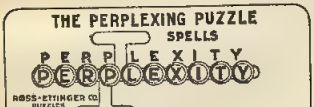
No. 765 Buster Brown bear bag $8 00



No. 775

No. 775 Bird Target $8 00

GAMES—Continued



No. 1045 Perplexity puzzle, nickel-plated and indestructible . Per doz. $1 50

No. 842

No. 842 Chinese ring bar puzzle . Per doz. $1 00

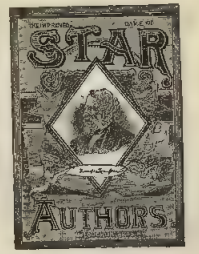
No. 629 Pigs in Clover Puzzle, consists of an enclosure with three partitions, with openings on alternate sides for pigs (marbles) to be driven through or, rather to be persuaded to go through until all are safely in the pen in the center 1 dozen in package . Per doz. $1 60

1040 Roberts Solitaire Puzzle, wood box 1 50

377 Madame Le Normand's Fortune Telling Cards, there are 36 cards, all having black and white illustrations, the label is in full colors and varnished, size 4x6 . 2 50

No. 919

No. 919 Auto Series, board games, 6 kinds, size 11x11 inches, 6 in package . . . . . Per doz. $1 50



No. 394 Star Authors, contains 16 portraits of various authors, introducing the "Star method" of counting, size 4½x6½, 1 dozen in package . Per doz. $3 50

No. 433

No. 434

No. 433 Mysterious Book Titles, 36 round cornered cards, and contains two games, one of Books and the other Authors, entirely new, size 4½x6½, 1 dozen in package $3 50

434 Black Cat, contains 36 full colored, round cornered cards, size 4½x6½, 1 dozen in package. 3 50

No. 397

No. 400

No. 397 Fireside Series, 6 kinds, Historical Game, Palmistry, Flags, Fortune Telling, Authors, Word Making and Word Taking, size of box 4x6, 1 dozen in package . . $3 50

400 Flags of All Nations, three cards make one complete flag or "book," there are 36 round cornered, full colored cards in the pack, the labels are in full colors and gold and varnished, size 4½x6½ 1 dozen in package 3 50

No. 106 Toy money . . . . . Per doz. $4 00

No. 367

No. 367 Lost Heir, the game is very simple and attractive being suitable to the needs of either children or young people, size 5x6½, 1 dozen in package . . . . . Per doz. $3 60

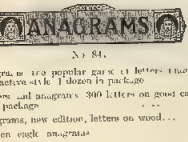
380½ Peter Coddle's Trip to New York, size 4x6½, 1 dozen in package 3 00

No. 124½

No. 124 "Who" a laughable game, consisting of questions and answers, 1 dozen in package. . . . Per doz. $4 00

124½ I Doubt It a card game for any number of players 4 00

125 New Old Maid, enameled round cornered cards, fine cotton 4 00



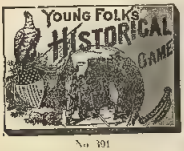
No. 841

No. 841 Anagrams, two popular games of letters, know a word game, attractive 4x6 1 dozen in package . Per doz. $3 00

138 Letters and anagrams 300 letters on good cardboard 1 dozen in package . . . 3 00

168 Anagrams, new edition, letters on wood. . . . 4 00

Golden stack anagrams 4 00



No. 391

No. 391 Young Folk's Historical Game, popular edition, 36 cards, size 6½x4½, ½ dozen in package $3 00

391½ Young Folk's Geographical Game, popular edition, 36 cards, size 6½x4½, ½ dozen in package. . . 3 00

No. 131

No. 131 Authors, new edition, contain 36 cards, highly enamaled, round cornered, the highest grade of half-tone illustration covers the face of the card, size 5x6½, 1 dozen in package Per doz. $3 60

No. 125½

No. 125½ Sir Hinkle Funny-Duster, new card game, humorous designs and illustrations by Blair, 1 dozen in package $4 00

127½ Game of Population, each card bears the name of the city and the population of the last census. 4 00

CHARCOAL IRONS.

No. 4.

Note—A Charcoal Iron is a miniature Stove, used in the same manner as a common Flatiron and equally convenient. It is Cheap and Durable and possesses Many Advantages over the common Flatiron. The Iron is Heated with Charcoal, but Live Coals from a Common Wood Fire are equal to the very best Charcoal if made of Good Solid Wood Hickory, Dogwood, Elm, Black Ash, Maple and Black Walnut. Stone Coal cannot be used in this Iron.

Self-heating Charcoal Irons.
Polished Cast Iron Base; Gold Bronzed Removable Cast Iron Top-Piece and Chimney combined; Polished Hardwood Handle with Tin Heat-Shield; Adjustable Draft-Hole Cover.

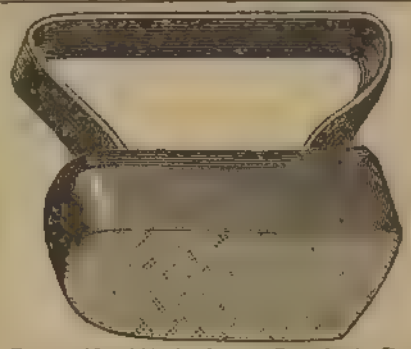
Per Dozen

No. 3—SINGLE FLUE; Bottom 6½ inches Long, 4 inches Wide; Extreme Height 7¾ inches; Handle 4½ inches Long; Weight per dozen about 72 lbs..... $25 00

No. 4—DOUBLE FLUE, Bottom 6⅝ inches Long, 4¼ inches Wide, Extreme Height 8⅛ inches Handle 5 inches Long; Weight per dozen about 84 lbs 25 00

One-half Dozen in a Case.

POLISHING IRONS.



Per Dozen

No. T—TROY PATTERN; Cast Iron Base, 4¾x2½ inches Polished Perforated Face; Polished Sides, Top of Base and Handle are Natural Finish Wrought Iron Handle 5 inches Long, Extreme Height 4⅞ inches; Weight per dozen about 48 lbs $9 00

Three Dozen in a Case.

SAD IRON STANDS.

No. P1.

No. C2.

STANDARD; Cast Iron

Per Dozen

No. P1—POTTS' PATTERN; Japanned, with Three Cast Feet, and with ¼ inch Flange on Edge; Length 6 inches; Width 4¾ inches. Weight per dozen about 8 lbs $3.00

Per Dozen

No. C2—COMMON PATTERN; Plain Finish, with Three Cast Feet; Length 5½ inches; Width 3¾ inches; Tail Piece 2⅝ inches; Weight per dozen about 7 lbs..... $2 40

No P1, One-half Dozen; No. C2, One Dozen in a Package;
Twelve Dozen in a Case.

SAD IRONS.

ASBESTOS.

Varnished Hardwood Case 4½ inches High, 12½ inches Wide, 17½ inches Long; With Hinged Cover; Case has Separate Compartment for Each Iron.

No. 570—Asbestos Family Cabinet, Consisting of:

3 only No. 72 Cores.
1 only No. 82 Core
1 Only No. 71 Hood and Handle.
1 only Flounce Core.
1 only Sleeve Core with Hood and Stand
1 only No. 10 Tourist Iron, with Hood and Stand.
1 only Stand for No. 70 Set.
1 only Sad Iron Waxer

Weight per set about 40 lbs ..... Per Set $7 50

One Set in a Case.

SAD IRON ASSORTMENT.

The Dimensions of Stand are as follows: Width of Side at Top 11½ inches; Width of Side at Bottom 21½ inches; Height, when set up, 13¼ inches.

With Each Assortment No. 5 Asbestos Sad Irons is included a Handsome Display Stand for the Dealer, Free.

ASBESTOS.

Stand made of Pressed Steel Coated with Green Enamel. Two of the Faces are Blanked Out to Form Compartments for the following Irons. Side A will accommodate One No. 82 Pressing Core, One No. 72 Laundry Core with Hood, One No. 142 Laundry Core, and One Sleeve Iron. Side B will accommodate One No. 42 Sleeve Core, One No. 50 Flounce Iron, One No. 32 Polishing Core, and One No. 10 Tourist Iron. The Third Side of the Stand is Plain. The Top of the Stand will accommodate Several Irons or an Assortment of Printed Matter, or it can be used as a Table for the purpose of Demonstration.

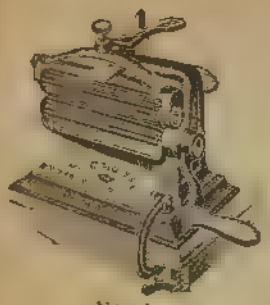
No. 5—ASBESTOS ASSORTMENT, with Handsome Display Stand (see below); Weight complete about 175 lbs ..... Each $15 30

Consisting of	Per Dozen	
¼ Dozen No. 70 Laundry Sets at	$24 00	$6 00
1/12 Dozen No. 100 Laundry Sets at	24 00	2 00
1/12 Dozen No. 120 Laundry Sets at	24 00	2 00
1/12 Dozen No. 80 Pressing Irons at	22 00	1.85

Consisting of	Per Dozen	
⅛ Dozen No. 60 French Sets at	$20.00	$3 35
¼ Dozen No. 50 Flounce Irons at	10 00	2 50
¼ Dozen No. 40 Sleeve Irons at	8.00	2 00
½ Dozen No. 10 Tourist Irons at	4.00	2 00

Each Assortment Packed in a Case. $21.70

FLUTING MACHINES.



No. C

Japanned Cast Iron Base; Swinging Clamp, Opens 1⅜ inches, to fasten to Table; Two Fluted, Hollow Brass Rolls 6 inches Long; Cast Japanned Roll-Adjusting Lever, with Stop and Set Screw; Steel Spring 6 inches Long, 1⅛ inches Wide; Crank 3¾ inches Long, with Wood Handle; Four Solid Cast Heaters ⅝ inch in Diameter, 5 inches Long; One Pair Tongs 11 inches Long

No. K.

CROWN.

Base 5⅞ inches Wide, 8¾ inches Long. Height over all 8 inches

	Each
No. C18—18 FLUTES, Weight each about 14 lbs..	$4 00
No. C22—22 FLUTES; Weight each about 14 lbs..	4.00

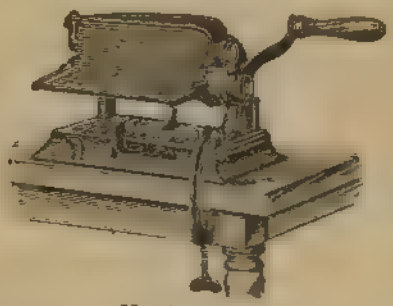
One in a Wood Box.

KNOX, WITH END POST.

Base 6¼ inches Wide, 9 inches Long. Height over all 8¾ inches.

	Each
No. K18—18 FLUTES; Weight each about 14 lbs..	$4 00
No. K22 22 FLUTES; Weight each about 14 lbs..	4.00

One in a Wood Box.



No. A.

Japanned Cast Iron Base Frame and Apron Swinging Clamp Opens 1½ inches to fasten to Table. Two Fluted, Hollow Brass Rolls 6 inches Long The Apron in Front is arranged to Guide the Material and, either by Pressure of the hand on it, or by Pushing Lever at the Base, Separates the Rolls Crank 3¾ inches Long, with Wood Handle Four Solid Cast Heaters 1½ inches in Diameter, 5 inches Long, Steel Lifter with Wood Handle 3½ inches Long.

AMERICAN, WITH APRON.

Base 5¾ inches Wide, 8⅝ inches Long. Height over all 5½ inches.

	Each
No. A18—18 FLUTES. Weight each about 12 lbs.	$3 50
No. A22—22 FLUTES; Weight each about 12 lbs.	3.50

One in a Wood Box

No. G

Japanned Cast Iron Base 3⅞ inches Wide, 6 inches Long, Inserted White Metal Fluting Plate 3 inches Wide 5⅜ inches Long with 15 Flutes White Metal Convex Fluted Iron, with Steel Shanks and Cast Handle.

	Per Dozen
No. G—GENEVA FLUTERS COMPLETE, Weight per dozen about 64 lbs	$15 00

One-half Dozen in a Case

FLUTING PLATES.

	Per Dozen
No. GB—Extra White Metal Fluting Plates, with Base for No. G Geneva Fluters Weight per dozen about 44 lbs	$8.00

Packed Loose

PINKING IRONS.

Forged from Tool Steel, Tempered and Polished.

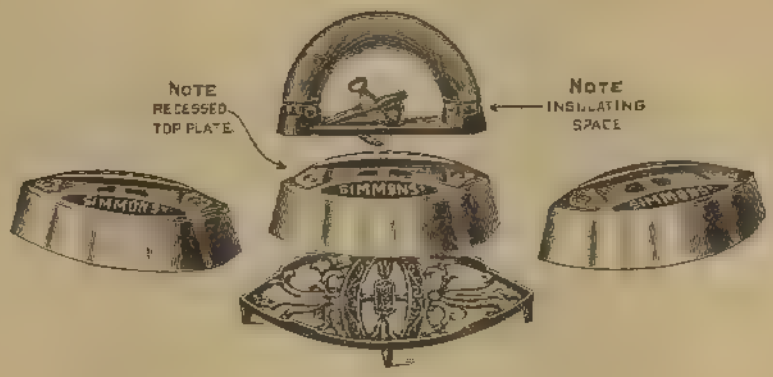
Size, inches	1/2	5/8	3/4	7/8	1
Length, inches	3¼	3½	3¾	3⅞	4
Wgt. per doz. about, lbs.	¾	1	1¼	1½	1¾
Per dozen	$2 25	2 25	2 25	2 25	2.25

Assorted: One-fourth dozen each ½, ⅝ and ¾ inch; One-sixth Dozen ⅞ inch; One-twelfth Dozen 1 inch..... Per Dozen $2.25

One Dozen in a Cardboard Box.

TRADE MARK
"SIMMONS' SPECIAL,"
REGISTERED.

SAD IRONS.



No Rattling of Handles; Heavy Spring Catch.

SIMMONS' SPECIAL*.

Extra Polished Nickel Plated Cast Iron Cores, in Sets of One Each No 1 (4¼ lbs.), No 2 (5 lbs.), and No 3 (5½ lbs.), Pointed at Both Ends, Gun Metal Finish; Cast Iron Recessed Top Plates, with Raised Lettering and Trimmings, No SH Black Finish Hardwood Grip Detachable Handle, with Gun Metal Finish Patent Insulating Malleable Iron Stretcher, Heavy Spring and Catch; Japanned Ornamental Cast Iron Stand 4⅜ inches Wide, 7⅜ inches Long.

Per Set

No. S/50—SIMMONS SPECIAL*; Weight per set about 15½ lbs $1 20

ENTERPRISE

Per Set

No. E50—ENTERPRISE. Nickel Plated Cast Iron Cores, in Sets of One Each, No 1 (4¼ lbs.); No 2 (5 lbs.) and No 3 (5½ lbs.), Pointed at Both Ends, Tinned Top Castings, with No B10 Tinned Steel Stretcher, Walnut Grip Handle; Japanned Cast Iron Stand 4⅜ inches Wide, 6 Inches Long; Weight per set about 15½ lbs. $1.20

Six Sets in a Case

TRADE MARKS.
"SIMMONS' SPECIAL,"
AND
"LACLEDE,"
REGISTERED.

SAD IRONS.

No. P50.

BEST ON EARTH.

Per Set

No. BOE—BEST ON EARTH; Nickel Plated, Cast Iron Cores in Sets of One Each, No 1 (4¾ lbs), No 2 (5 lbs), and No. 3 (5½ lbs); Pointed at Both Ends; Ornamental Old Copper Plated Top Plate and Stand, 4¼ inches Wide, 7¼ inches Long, with No BOE Copper Plated Malleable Stretcher, Hazelwood Grip Handle; Weight per set about 15½ lbs..... $1.20

STANDARD; POTTS' PATTERN

Cast Iron Cores, in Sets of One Each No. 1 (4 lbs), No 2 (4¾ lbs), and No 3 (5 lbs.), Pointed at Both Ends, Aluminum Bronzed Tops With No HJ Pattern Aluminum Bronzed Cast Stretcher, Hazelwood Grip Handle Coppered Cast Iron Stand 4 inches Wide, 5⅞ inches Long.

Per Set

No. P50—STANDARD; NICKEL PLATED; Weight per set about 15 lbs.. ..... $1.00

No. P55—STANDARD; POLISHED; Weight per set about 15 lbs ..... .95

Six Sets in a Case.

SAD IRON HANDLES.

No SH.

NOTE Straight Side Handles will fit any Standard Make Potts' Pattern Iron. Shaped Side Handles will fit only Enterprise Pattern Irons

Metal Stretcher, Screwed to Hardwood Curved Handle; Steel Spring Clamps, with Wood Knob; Polished Finish Handle

No. LJ.

Per Dozen

No. SH—SIMMONS' SPECIAL*; Malleable Insulated Stretcher, Gun Metal Finish Rubberoid Finish Hardwood Grip, Straight Sides; Long Screws; Four Projections at Each End of Stretcher provide an Air Space, preventing the Screws heating and charring the Wood; Length 5¾ inches; Height 3⅝ inches..... $5.00

Per Dozen

No. 22—OBER; Japanned Cast Iron Stretcher and Ends; Beechwood Grip; Shaped Sides; Length 5⅞ inches; Height 3¼ inches..... $4.50

Per Dozen

No. L—LACLEDE*; Tinned Malleable Stretcher; Select Hazelwood Grip, Straight Sides, Long Screws; Length 6 inches; Height 3¼ inches $4.00

No. LJ—LACLEDE*; Japanned Malleable Stretcher; Select Hazelwood Grip; Straight Sides, Long Screws; Length 6 inches; Height 3¼ inches 3.50

No. B10—ENTERPRISE; "BEST"; Tinned Forged Iron Stretcher; Walnut Grip; Straight Sides; Long Screws; Length 6 inches; Height 3¼ inches 2.50

No. HJ—STANDARD; Japanned Cast Iron Stretcher; Hazelwood Grip; Length 5⅞ inches; Height $3^{1}/_{16}$ inches 2.40

Weight per Dozen about 7 lbs.

Per Dozen

No. 25—PERFECTION; Japanned Stamped All Steel Stretcher, Round Grip and Corrugated Uprights, Riveted to Stretcher, with Asbestos Washer between, at Each End; Riveted Steel Spring Clamp with Wood Knob; Length 5¾ inches; Height 3½ inches; Weight per dozen about 6 lbs..... $3.50

Nos. SH, L and LJ One Dozen in a Cardboard Box. Twelve Dozen in a Case. No. B10, Twelve Dozen in a Case; No. 25, One-twelfth Dozen in a Carton; Twelve Dozen in a Case; Balance in Bulk.

SAD IRONS.

No. 70 Core

No. 102 Core.

Stand. Core

No. 70 Set Complete.

Cut shows No. 80.

Vertical Section of No. 70 Iron.

ASBESTOS

Solid Cast Iron Cores, with Extra Polished Nickel Plated Faces and Flanges; Asbestos Lined Nickel Plated Hood; With Black Enameled Horizontal Bolted Wood Handle and Patent Lock; Asbestos Covered Stamped Steel Stand 5½ inches Square.

Per Set

No. 70—ASBESTOS LAUNDRY SET; Consisting of:

2 Only No. 72 4½ lb. Cores.
1 Only No. 72 4¾ lb. Core.
1 Only No. 71 Hood and Handle; Weight 1¼ lbs.
1 Only Stand, Weight ¼ lb.
Weight per set about 17 lbs..... $2.00

Per Set

No. 110—ASBESTOS LAUNDRY SET; Consisting of:

1 Only No. 72 4½ lb. Core.
2 Only No. 102 5½ lb. Cores.
1 Only No. 71 Hood and Handle; Weight 1¼ lbs.
1 Only Stand, Weight ¼ lb.
Weight per set about 18 lbs $2.00

Per Set

No. 100—ASBESTOS LAUNDRY SET, Consisting of:

2 Only No. 72 4½ lb. Cores.
1 Only No. 102 5½ lb. Core
1 Only No. 71 Hood and Handle; Weight 1¼ lbs.
1 Only Stand, Weight ¼ lb.
Weight per set about 17½ lbs . . $2.00

Per Set

No. 120—ASBESTOS LAUNDRY SET; Consisting of:

2 Only No. 102 5 lb. Cores.
1 Only No. 102 5½ lb. Core.
1 Only No. 71 Hood and Handle; Weight 1¼ lbs.
1 Only Stand, Weight ¼ lb.
Weight per set about 18½ lbs..... $2.00

One Set in a Wood Box: Six Sets in a Case.

Per Dozen Sets

No. 80—ASBESTOS PRESSING IRON; Consisting of: 1 Only No. 82 8 lb. Core; 1 Only No. 71 Hood and Handle; Weight 1¼ lbs.; Weight per dozen sets about 120 lbs. $22.00

One-twelfth Dozen Sets in a Wood Box

EXTRA PARTS FOR ABOVE.

Per Dozen

No. 71—Asbestos Hood and Handle: Pressed Steel Asbestos Lined, Nickel Plated, 6¼ inches Long; With Black Enameled Horizontal Bolted Wood Handle 4⅞ inches Long, and Patent Lock; For Irons Nos. 70, 100, 110, 120 and 80; Weight per dozen about 15 lbs. $10.00

No. 72—Asbestos Core; Solid Cast Iron, Pointed at Both Ends; Extra Polished, Nickel Plated Face and Flange, Aluminum Bronzed Top; 6½ inches Long; Weight each 4½ lbs.; Weight per dozen about 60 lbs.. 5.50

No. 102—Asbestos Core; Solid Cast Iron, Square Heel, Pointed End; Extra Polished, Nickel Plated Face and Flange; Aluminum Bronzed Top; 6⅝ inches Long; Weight each 5½ lbs; Weight per dozen about 72 lbs. 7.00

One-half Dozen in a Case.

SAD IRONS.

No. 60 Set Complete.

No. 66 Set Complete.

No. 9.

No. 1

Solid Cast Iron Cores, with Extra Polished Nickel Plated Face and Flange; Asbestos Lined Nickel Plated Hood, with Steel Handle Low, Riveted on, Black Enameled Horizontal Wood Handle, and Patent Lock, Asbestos Covered Stamped Steel Stand.

Per Dozen Sets

No. 60—ASBESTOS SHIRTWAIST SET; Consisting of

1 Only 4½ inch Hood, with 3⅞ inch Handle; Weight ¾ lb.
2 Only Cores Pointed at Both Ends; 4¾ inches Long; Weight each 1⅝ lbs.
1 Only Stand; Weight ¼ lb.
Weight per set 4½ lbs. $12 00

Per Dozen Sets

No. 66—ASBESTOS FRENCH SET; Consisting of:

1 Only No. 41 Hood and Handle; Weight ½ lb.
1 Only No. 32 Square Heel Sleeve Core; Weight 1¾ lbs.
1 Only No. 52 Flounce Core; Weight 2⅛ lbs.
1 Only No. 42 Double Pointed Sleeve Core; Weight 1½ lbs.
1 Only Stand; Weight ¼ lb
Weight per set about 9 lbs. . . . $20 00

One Set in a Wood Box; One Dozen Sets in a Case.

Per Dozen

No. 40—ASBESTOS SLEEVE IRON; Consisting of One 4½ inch Hood, with 3⅞ inch Handle; One Core Pointed at Both Ends, 4¾ inches Long; Weight each 1¾ lbs; And One Stand especially Suitable for Ironing Inside of Sleeves, for Laces, Ribbons, Handkerchiefs and Other Fine Work; Weight per dozen about 31 lbs $8 00

No. 50—ASBESTOS FLOUNCE IRON Consisting of One 4½ inch Hood, with 3⅞ inch Handle, and One Long Taper Core 6¼ inches Long, Weight each 3½ lbs.; Suitable for Ironing Ruffles and Flounces; Weight per dozen about 44 lbs. 10.00

One-twelfth Dozen in a Paper Carton One-half Dozen in a Case.

Per Dozen

No. 10—ASBESTOS TOY OR TOURIST IRON, Consisting of One 3⅞ inch Hood, with 3 inch Handle, One Core Pointed at Both Ends 4⅛ inches Long, Weight each 1¼ lbs., and One Stand; Weight per dozen about 20 lbs. $4.00

One-twelfth Dozen in a Paper Carton; One Dozen in a Case.

TOY SAD IRONS.

No. 88½.

REGULAR PATTERN.

No. 20

Cast Iron Base and Handle; With Coppered Iron Stand.

Per Dozen

No. 88½—Polished Face and Edges; Gold Bronzed Top and Handle; Pointed at Both Ends; Length 3 inches; Height 2⅛ inches; Length of Stand 3 inches; Weight per dozen about 8 lbs. $1 00

No. 189—Nickel Plated Face and Edges Gold Bronzed Top and Handle; Pointed at Both Ends; Length 3½ inches; Height 2⅝ inches; Length of Stand 3⅝ inches; Weight per dozen about 14 lbs. 2 00

No. 20—Nickel Plated Face and Edges, Aluminum Bronzed Top; Round Steel Shanks and Handle; Square Heel; Length 4¼ inches; Height 3¼ inches; Length of Stand 6¾ inches; Weight per dozen about 28 lbs 4 00

Nos. 88½ and 189, One Dozen in a Paper Carton; No. 88½, Twenty-four Dozen; No. 189 Twelve Dozen; No. 20, Six Dozen in a Case.

No 090.

POTTS' PATTERN

Nickel Plated Cast Iron Base, Pointed at Both Ends Walnut Stained Handle; With Coppered Cast Iron Stand

Per Dozen

No. 200—Japanned Top Plate; Non-Detachable Handle; Length 3⅞ inches; Height 2½ inches; Length of Stand 3⅝ inches; Weight per dozen about 8½ lbs. $2.00

No. 092—Gold Bronzed Top Plate; Detachable Handle, with Gold Bronzed Cast Iron Stretcher and Catch; Length 3⅞ inches; Height 3 inches; Length of Stand 3½ inches; Weight per dozen about 20 lbs. 3 75

No. 090—Gold Bronzed Top Plate; Detachable Handle, with Gold Bronzed Cast Iron Stretcher and Catch; Length 4¾ inches; Height 3⅝ inches; Length of Stand 4⅝ inches; Weight per dozen about 30 lbs . . . 5 75

No. 200, One-half dozen in a Paper Box; Twelve Dozen in a Case; Nos. 090 and 092, One-twelfth Dozen in a Carton; Twelve Dozen in a Case.

TRADE MARK "LACLEDE," REGISTERED

SAD IRONS.

There is no Selection in Laclede Sad Irons, Each one is Perfect.

Cast Iron Base and Handle; Steel Shanks.

LACLEDE*; Black Finish; Extra Planed and Polished Face and Edges.

In Full Cases.

Weight each, lbs.	5	6	7	8	9	Asst'd 5 to 8
Weight per case about, lbs	200	200	200	200	200	200
Per lb	$0.06	.06	.06	.06	.06	.06

Assorted in Half Cases.

Weight each, lbs.	Asst'd 5 to 7	Asst'd 6 to 8
Weight per case about, lbs.	100	120
Per lb	$0.06	.06

ST. LOUIS*; Natural Finish; Polished Face and Edges.

In Full Cases.

Weight each, lbs.	5	6	7	8	9	Asst'd 5 to 8
Weight per case about, lbs	200	200	200	200	200	200
Per lb	$0.05	.05	.05	.05	.05	.05

Assorted in Half Cases.

Weight each, lbs.	Asst'd 5 to 7	Asst'd 6 to 8
Weight per case about, lbs.	100	120
Per lb	$0.05	.05

‡STANDARD.

Cast Iron Base and Handle; Steel Shank; Polished Face.

‡In Full Cases.

Weight each, lbs	4	5	6	7	8	9
Weight per case about, lbs	200	200	200	200	200	200
Per lb	$.05	.05	.05	.05	.05	.05

‡Assorted in Half Cases.

Weight each, lbs	Asst'd 5 to 8	Asst'd 6 to 9
Weight per case about, lbs	100	120
Per lb	$0.05	.05

Packed in Cases as Stated.

TAILORS' IRONS.

First Class High Grade Goods.

TAILORS' GEESE.

Natural Finish Cast Iron Handle and Base; With Extra Planed and Polished Face and Edges; ½ inch Wrought Iron Shanks.

No. LTP—LACLEDE*; TAILORS' PRESSING IRONS.

Weight each, lbs.	12	15	18
Length of Base, inches	7	7½	8
Width of Base, inches	5¼	5⅜	5½
Per lb	$0.10	.10	.10

Gold Bronzed, Cast Iron Base With Extra Planed and Polished Face and Edges; ½ inch Wrought Iron Twisted Handle.

No. LTG—LACLEDE*; TAILORS' GEESE.

Weight each, lbs	14	16	18	20	22	24
Length of Base, inches	10	10	10¾	10⅝	10½	10¾
Width of Base, inches	2⅝	2¾	2⅞	3¼	3⅜	3½
Per lb	$0.10	.10	.10	.10	.10	.10

Packed Loose.

‡Goods marked thus (‡) are not carried in stock and can only be furnished by shipment direct from factory.

TRADE MARK "KOFFEE KRUSHER," REGISTERED.

COFFEE MILLS.

Handsomely
Finished
Ball-Bearing.
Easy Running.

KOFFEE KRUSHER*.

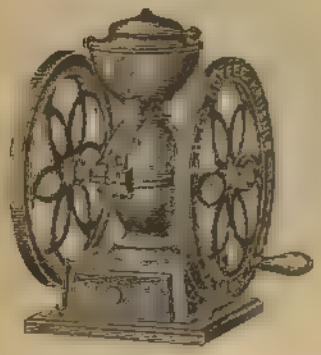
Cast Iron, Painted Blue, Gold Striped; Hardened Cast Grinders; With Crank Thumb Screw Adjustment at End of Crank; Capacity of Hopper, 4 ozs.; will grind 6 ozs. per minute.

No. KK10—KOFFEE KRUSHER*, PLAIN BEARING; With Clamp to fasten to Table; Open Hopper 3½x4 inches; Height over all 11½ inches; Extreme Width [illegible] inches, Weight each about [illegible] lbs. ..... Each $3.00

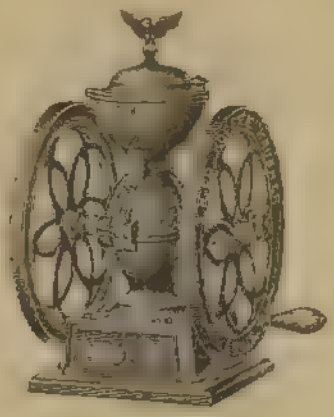
Six in a Case.

No. KK11—KOFFEE KRUSHER*, BALL BEARING With Slide Cover and Drawer; Hardwood Base, 6½ inches square Hopper 4x4 inches; Height over all 12½ inches; Extreme Width [illegible] inches; Weight each about 10 lbs. ..... Each $4.50

Three in a Case.



Sectional View Showing Grinders and Bearings



KOFFEE KRUSHER*.

Wheel Pattern; Cast Iron, Painted Blue Red and Gold Striped, Hardened Cast Grinders; Ball Bearing, with Drawer and Slide Cover to Hopper Hardwood Base; Thumb Screw Adjustment on side of Wheel

WHEEL PATTERN; BALL BEARING.

Nos	KK12	KK13	KK15	KK17	KK19
Capacity of Hopper	4 ozs.	5 ozs.	12 ozs.	1¾ lbs.	3 lbs
Will Grind per minute	6 ozs.	8 ozs.	12 ozs.	1 lb	1½ lbs.
Hopper size, inches	3¼x4	3x4¾	3½x6¾	5½x7¼	6½x9
Height over all, inches	12½	14½	16½	21	25
Extreme Width, inches	7½	9	10	12¾	17¼
Base Board, inches square	6½	8⅝	10	11⅛	13
Fly Wheel, Diameter, inches	8¾	10¾	12½	17	19½
Weight each about, lbs	15	23	42	74	128
Each	$7.50	11.00	16.00	22.00	32.00

All Mills on this page except Nos. KK15 and KK19 are Pulverizers and will grind Coffee, Pepper and other Spices as fine as may be required Nos KK17 and KK19 have Regular Coffee Grinders only. No. KK19 can be furnished with Special Spice Grinders for Extra Fine Grinding for shipment from factory.

KK12, KK13, KK15, One in a Case; KK17, KK19, One in a Crate.

‡COFFEE MILLS.

No. 512.

ENTERPRISE, LARGE, WHEEL PATTERN, PLAIN BEARING.

Cast Iron, Painted Red, Blue and Gold Striped; Hardened Cast Grinders; Plain Bearing; Two Piece Globe or Body, Fastened by Thumb Bolt; Arched Base and Removable Painted Tin Scoop or Container, with Hollow Spout Handle; Adjusting Wheel and Sleeve on Axle near Hand Wheel.

No. 714

WITH CAST IRON HOPPER AND PIVOTED COVER

Each

‡No. 512—Capacity of Hopper 2 lbs.; Will Grind a Pound of Coffee in 120 Turns. Hopper 7⅞ inch Diameter. Height over all 31 inches; Diameter of Base 13½ inches. Diameter of Flywheels 17 inches; Weight each about 62 lbs.....$13.50

‡No. 712—Capacity of Hopper 3½ lbs. Will Grind a Pound of Coffee in 75 Turns. Hopper 8⅝ inches Diameter; Height over all 36 inches, Diameter of Base 15½ inches, Diameter of Flywheels 19 inches. Weight each about 99 lbs.... 18.00

WITH NICKEL PLATED STEEL HOPPER AND REMOVABLE COVER.

Each

‡No. 514—Capacity of Hopper 2¼ lbs.; Will Grind a Pound of Coffee in 120 Turns. Hopper 7⅞ inches Diameter. Height over all 31 inches; Diameter of Base 13½ inches; Diameter of Flywheels 17 inches. Weight each about 58 lbs....$17.00

‡No. 714—Capacity of Hopper 4 lbs.; Will Grind a Pound of Coffee in 75 Turns. Hopper 9 inches Diameter. Height over all 36 inches; Diameter of Base 15½ inches; Diameter of Flywheels 19 inches. Weight each about 90 lbs.... 22.00

Packed in One Crate and One Box

No. 716.

ENTERPRISE, WHEEL PATTERN, PLAIN BEARING, WITH STAND.

General Description same as Nos. 512, etc., except with Painted Cast Iron Braced Elevating Stand or Base.

Each

‡No. 716—WITH CAST IRON HOPPER AND PIVOTED COVER; Capacity of Hopper 3½ lbs.; Will Grind a Pound of Coffee in 75 Turns; Hopper 9⅜ inches Diameter; Height over all 60 inches; Dimensions on Floor 21½x22 inches; Flywheels 25 inches Diameter; Weight each about 170 lbs.....$32.50

‡No. 718—WITH NICKEL PLATED STEEL HOPPER AND REMOVABLE COVER; Capacity of Hopper 4 lbs.; Will Grind a Pound of Coffee in 75 Turns; Hopper 9¼ inches Diameter; Height over all 60 inches; Dimensions on Floor 21½x22 inches; Flywheels 25 inches in Diameter; Weight each about 162 lbs.. 38.50

Packed in Two Crates and One Box.

NOTE—All Coffee Mills on this page should be run at a speed of not over 200 Revolutions per Minute for Granulating, or 100 Revolutions per Minute for Pulverizing; One-fourth Horse Power required for Granulating at 100 Revolutions per Minute; One-half Horse Power required for Pulverizing at 100 Revolutions per Minute. All Mills on this page can be regulated to Grind Coarse or Fine while running. In ordering, specify purpose for which Mill is to be used and how fine material is to be ground. When Special Specifications are not given, Mills will be sent with Grinders for Granulating Coffee.

‡Goods marked thus (‡) are not carried in stock and can only be furnished by shipment direct from factory.

COFFEE MILLS.

ENTERPRISE.

Cast Iron, Painted Black, Red and Gold Striped; Hardened Cast Grinders, Plain Bearing, with Crank; Thumb Screw Adjustment; Capacity of Hopper 4 oz.; will Grind 6 ozs. per minute.

No. 00E—ENTERPRISE; To Screw on Wall Complete with Cup; Side Adjustments; Open Hopper, 3½x4 inches; Height over all 9 inches; Extreme Width 5½ inches; Weight each about 6 lbs..... Each $1.25

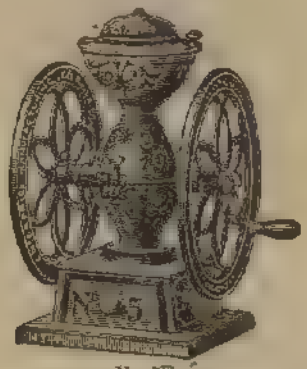
Twelve in a Case.

No. 0E—ENTERPRISE; With Clamp to Fasten to Table; Open Hopper 3½ x4 inches; Height over all 11½ inches; Extreme Width 5½ inches; Weight each about 6 lbs..... Each $1.50

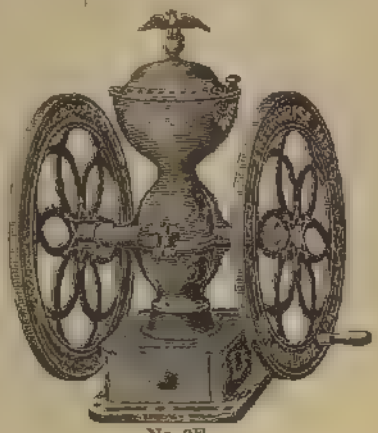
Twelve in a Case.

No. 1E—ENTERPRISE; With Slide Cover and Drawer; Hardwood Base, 6½ inches Square; Hopper, 3½x4 inches; Height over all 12½ inches; Extreme Width 5 inches; Weight each about 10 lbs..... Each $2.25

Six in a Case.



No. 5E.



No. 9E.

ENTERPRISE.

Wheel Pattern, Plain Bearing.

Cast Iron, Painted Red, Blue and Gold Striped; Hardened Cast Grinders, Plain Bearing; With Drawer and Slide Cover to Hopper; Hardwood Base; Thumb Screw Adjustment on Side of Wheel.

Nos	2E	3E	5E	7E	9E
Capacity of Hopper	4 ozs.	8 ozs	12 ozs	1¾ lbs.	3 lbs.
Will Grind, per minute	6 ozs.	8 ozs	12 ozs.	1 lb.	1½ lbs.
Hopper size, inches	3x4¼	3½x5¼	3¾x6	5½x7¼	6½x9
Height over all, inches	12½	15	17	21½	24
Extreme Width, inches	7	8½	10	13⅜	16¾
Base Board, inches square	6½	8½	9½	11¼	13
Fly Wheel, Diameter, inches	8¾	10¾	12½	17	19½
Weight each about, lbs	15	22½	36	72	118
Each	$3.75	5.50	8.00	11.00	16.00

All Mills on this page, except Nos. 5E and 9E, are Pulverizers, and will Grind Coffee, Pepper, and other Spices as fine as may be required.

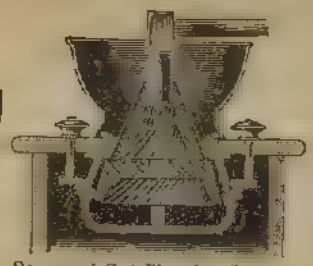
Nos. 5E and 9E have Regular Coffee Grinders only; Nos. 9E can be furnished with Special Spice Grinders for Extra Fine Grinding, for Shipment from factory.

2E, Six in a Case; 3E and 5E, Three in a Case; 7E and 9E, One in a Crate.

TRADE MARK "RUN EASY" REGISTERED.

COFFEE MILLS.

Solid Oak Box Beautifully Finished.



Section Cut Showing Double Grinders and Adjustment.

Double Grinders Do Thorough Work.

RUN EASY*, Oak; Box Pattern.

Polished Lock Cornered OAK BOX with Drawer; Cast Iron Top Castings and Crank, Bower-Barff Finish; Enameled Knobs; Two Top Adjustment Nuts; Adjustable Chilled Iron Double Grinders.

Per Dozen

No. 97—RUN EASY*; Box, 6 inches Square; Height 4½ inches; Height over all 7 inches; Weight per dozen about 66 lbs.....$13.50

No. 98—RUN EASY*; Box, 7 inches Square; Height 4½ inches; Height over all 7½ inches; Weight per dozen about 76 lbs..... 14.75

Per Dozen

No. 99—RUN EASY*; Box, 7 inches Square; Height 7 inches; Height over all 9 inches; Capacity One Pound; Weight per dozen about 97 lbs.....$16.50

RUN EASY*, Steel; Box Pattern.

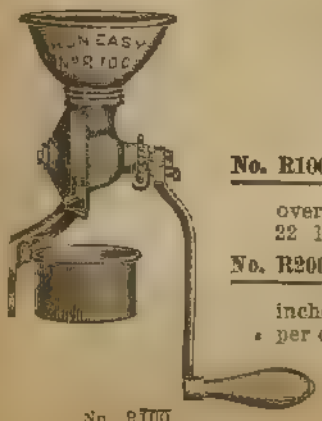
22 Gauge STAMPED STEEL, Japanned Box, with Metal Drawer; Reinforced Top; Dished and Beaded Bottom; Steel Crank and Side Handle; Enameled Knob; Sunk Hopper, with Slide Cover; Patent Adjustment Screw on Top of Handle; Adjustable Chilled Iron Grinders.

Per Dozen

No. R300—RUN EASY*; Box, 6¼ inches Square; Height 5⅛ inches; Height over all 7½ inches; Weight per dozen about 30 lbs.....$10.00

Per Dozen

No. R400—RUN EASY*; Box, 6¼ inches Square; Height 7½ inches; Height over all 10 inches; Capacity 1 pound; Weight per dozen about 45 lbs. $12.00



No. R100

RUN EASY*, Iron.

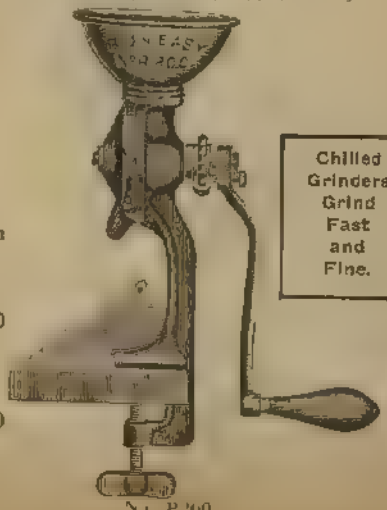
Japanned Cast Iron Body, with Detachable Japanned Steel Hopper; Off-Set Japanned Crank, with Wood Grip; Patent Adjustment Screw; Adjustable Chilled Iron Grinders.

Per Dozen

No. R100—RUN EASY*; To Screw on Wall; Complete with Detachable Tin Cup; Height over all 8¼ inches; Weight per dozen about 22 lbs..... $9.50

No. R200—RUN EASY*; To Clamp on Table; Without Cup; Height over all 11¼ inches; Spread of Clamp 1⅝ inches; Weight per dozen about 55 lbs..... 11.00

One-Half Dozen in a Wood Box.

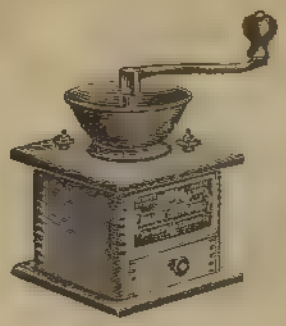


Chilled Grinders Grind Fast and Fine.

No. R200

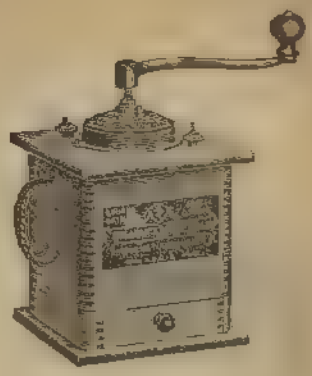
TRADE MARKS: "DELMAR" AND "UTILITY" REGISTERED.

COFFEE MILLS.



DELMAR*, Box Pattern.

Varnished Lock Cornered Hardwood Box, with Drawer; Fire Bronzed Cast Iron Top Castings and Gold Bronzed Crank; Enameled Knobs; Two Top Adjustment Nuts; Adjustable Chilled Iron Double Grinders.



Per Dozen

No. B1—DELMAR*; Box, 6 inches Square; Height 4½ inches, Height over all 7 inches, Weight per dozen about 57 lbs.....$11 10

No. B2—DELMAR*; Box, 7 inches Square, Height 4½ inches; Height over all 7½ inches; Weight per dozen about 70 lbs..... 12.50

Per Dozen

No. BP3—DELMAR*: Box, 7 inches Square, Height 7 inches, Height over all 1 inches; Capacity One Pound; Weight per dozen about 84 lbs $13 20

No. S10.

DELMAR*, Side or Wall Pattern.

Varnished Hardwood Back, Finished Edges; Cast Iron Fire Bronzed Body and Hopper, and Gold Bronzed Crank, Plain Grip, Two Side Adjustment Nuts, Adjustable Chilled Iron Grinders; Hinged Cover to Hopper.

Per Dozen

No. S/10—DELMAR*, Side or Wall Pattern; Height over all 7 inches; Width 7 inches; Weight per dozen about 66 lbs ..... $8..5

No. U1.

UTILITY*, Box Pattern.

Cast Iron Hopper and Crank, Enameled Knob; Dovetailed Hardwood Box, with Drawer, Varnished; Berlin Bronzed Castings; Top Regulating Nut; Chilled Iron Grinders.

Per Dozen

No. U1—UTILITY*; Box, 5¾ inches Square; Height 3¾ inches; Hopper 1½x4 inches; Weight per dozen about 35 lbs..... $5.30

No. U2—UTILITY*: Box, 6¼ inches Square, Height 4 inches, Hopper 2x4 inches, Weight per dozen about 48 lbs ..... $ 3.

Per Dozen

No. U3—UTILITY*; Box 6½ inches Square, Height 5 inches, Hopper 2x4½ inches, Weight per dozen about 60 lbs $9 4

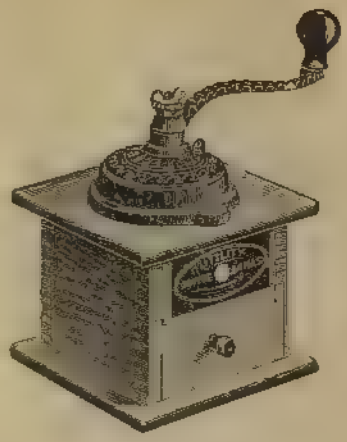
One-half Dozen in a Wood Box.

TRADE MARK: "UTILITY," REGISTERED.

COFFEE MILLS.

UTILITY*, Box Pattern.

Sunken Cast Iron Hopper, with Sliding Cover; Cast Iron Crank, Enameled Knob; Dove-Tailed Hardwood Box, with Drawer; Extra Finished and Varnished; Ornamental Berlin Bronzed Top Castings; Top Regulating Nut; Chilled Iron Grinders.



Per Dozen

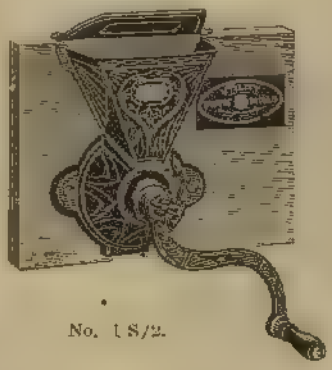
No. U20—UTILITY*; Box, 6 inches Square Height 4¾ inches Hopper 3½x2 inches, Weight per dozen about 60 lbs. $10.55

Per Dozen

No. U10—UTILITY*; Box, 6 inches Square, Height 5 inches, Hopper 3x2 inches, Weight per dozen about 50 lbs. $10 00

UTILITY*, Side Pattern.

Full Ornamental Cast Iron Hopper and Body, with Cast Crank; Enameled Grip; Mounted on Varnished Hardwood Board; Japanned Castings; Front Adjusting Screw; Chilled Iron Grinders; Drop Cover to Hopper.



No. US/2.

Per Dozen

No. US 1—UTILITY*; Board, 5¾x8 inches, Hopper 3½x4 inches, Weight per dozen about 40 lbs. $7.00

Per Dozen

No. US 2—UTILITY*; Board, 6¾x8¾ inches Hopper 3½x4½ inches, Weight per dozen about 50 lbs. ..... $ 8.50

No. US 3—UTILITY*; Board, 7¼x10 inches, Hopper 4x5 inches; Weight per dozen about 70 lbs. 10 00

No. U8.

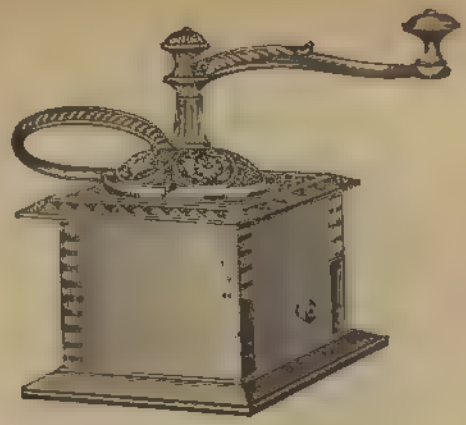
One Pound; Box Pattern.

Lock Cornered Hardwood Box, with Drawer, Extra Finished and Varnished, Japanned Crank and Side Handle; Enameled Knob; Top Adjusting Screw; Tin Screw Top Opening; Sunk Air-Tight Hopper; Capacity of Hopper about One Pound.

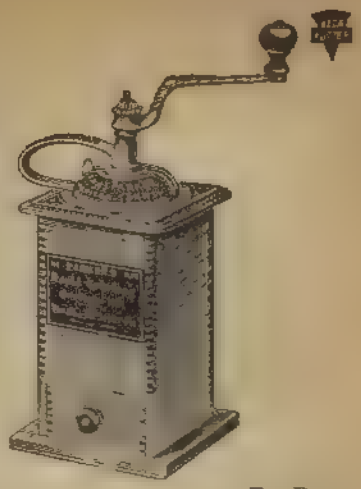
Per Dozen

No. U8—UTILITY*; With Wood Bottom to Hopper; Box 6½ inches Square; Height 7½ inches; Hopper 4½x5 inches; Weight per dozen about 58 lbs. $12.00

One-half Dozen in a Wood Box.



COFFEE MILLS.



PARKER'S, Box Pattern.

Hardwood Lock-Cornered, Varnished Box with Drawer; Sunk Hopper; Stamped Steel Top and Slide Cover; Cast Crank and Grip Handle; Coppered Finish; Enameled Knob; Hardened Cast Grinders; Top Adjustment Nut.

Per Dozen

No. 431—PARKER'S With Single Grinders. Box 6 inches Square; HEIGHT 5 INCHES, Hopper 4x3 inches. Weight per dozen about 66 lbs. $13.00

Per Dozen

No. 535—PARKER'S, With Single Grinders; Box, 6 inches Square. HEIGHT 9 INCHES. Hopper 5x3½ inches, Weight per dozen about 65 lbs. $12.00

PARKER'S, Box Pattern

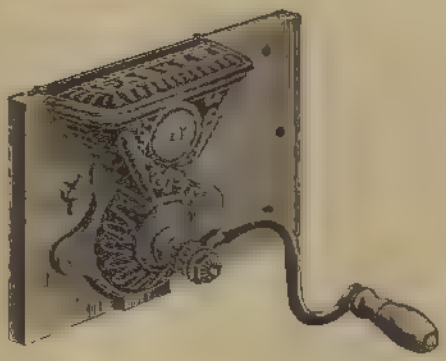
Hardwood Lock-Cornered Varnished Box, with Drawer; Japanned Iron Hopper and Crank; Enameled Knob; Two Adjustment Nuts on Top of Box.

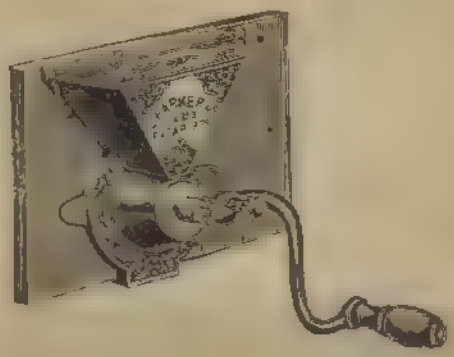
Per Dozen

No. 104—PARKER'S, WITH SINGLE GRINDERS; Box, 6 inches Square; Height 4 inches; Hopper 1½x4 inches; Weight per dozen about 50 lbs. ..... $ 8.50

No. 25—PARKER'S, WITH DOUBLE GRINDERS; Box, 7½ inches Square; Height 5 inches; Hopper 2x5 inches; Weight per dozen about 76 lbs. 15.00

One-half Dozen in a Case.





PARKER'S, Side or Wall Pattern.

Stamped Steel Hopper with Drop Cover. Japanned Cast Iron Body, Mounted on Varnished Hardwood Board; Cast Crank with Plain Handle, Front Adjusting Screw; Hardened Cast Grinders.

Nos.	50	60	70	80	130	135
Board, inches	6x8	7x9	7x10	9x12	11x15	5x8
Hopper Depth, inches.	3½	4	4	5½	7	3
Hopper Width, inches.	5	5	6½	7½	10	4
Wgt. per doz. about, lbs.	40	50	55	100	165	30
Per dozen	$7.50	8.50	10.00	16.00	25.00	6.00

No. 50 to 80, One-half Dozen; No. 130, One-third Dozen; No. 135, One Dozen in a Case.

Coppered Cast Iron Body and Hopper, with Drop Cover. Mounted on Varnished Hardwood Board. Cast Crank with Plain Handle; Front Adjusting Screw, Hardened Cast Grinders.

Per Dozen

No. 350—PARKER'S; Board, 6x8 inches; Hopper 5x3 inches. Weight per dozen about 70 lbs. $5.00

One-half Dozen in a Case.

COFFEE MILLS.

MONITOR.

22-GAUGE STAMPED STEEL JAPANNED HOPPER, Body and Beaded Base with Metal Cup; Japanned Cast Crank with Enameled Knob; Patent Grinder Adjustment, regulated with Steel Pin; Chilled Iron Grinder, with Feeding Prongs to gather in the Coffee quickly.

Per Dozen

No. M—MONITOR: Height over all 6¼ inches; Base 5 inches Square. Weight per dozen about 27 lbs. $3 00

One Dozen in a Case.

NONE-SUCH.

22 Gauge Stamped Steel Japanned Box, with Metal Drawer; Seamed Top; Dished and Beaded Bottom; Steel Crank; Enameled Knob; Sunk Hopper, with Dome Top and Sliding Cover; Adjusting Screw and Nut at Top of Handle; Adjustable Chilled Iron Grinders.

Per Dozen

No. NS—NONE-SUCH; Without Side Handle; Box, 6¼ in. Square; Height 7¾ in. (including Dome Top); Height over all 10¾ in.; Capacity 1 lb.; Weight per dozen about 40 lbs. $8.00

One Dozen in a Case.

OPLEX.

Stained Wood Back, 3½x14 inches; Heavy Japanned Stamped Steel Canister, with Removable Lid; Heavy Oval Bulls-Eye Glass pressed into the Front; Double Chilled Iron Grinders, with Wheel Screw Adjustment at Rear; Japanned Cast Iron Grinder Casing, Handle and Cup Bracket; Removable Japanned Sheet Metal Cup, resting on Bracket beneath Grinders.

Per Dozen

No. 10—OPLEX. Capacity of Hopper 1 lb. Height over all 14 inches. Extreme Width 4½ inches. Canister 7x4 inches. Weight per dozen about 57 lbs. $12.00

HOLLAND BEAUTY.

Wood Back, 4x12 inches, Varnished; Lithographed Tin Canister, with Lid; Chilled Iron Grinders; Front Thumb Screw Adjustment; Japanned Cast Body and Handle; Detachable Tin Cup.

Per Dozen

No. HB—HOLLAND BEAUTY; Capacity of Hopper 1 lb.; Height over all 14 inches; Extreme Width 4¼ inches; Canister 6x6 inches; Weight per dozen about 35 lbs. ..... $10.00.

One-twelfth Dozen in a Carton; One Dozen in a Case.

X-RAY.

Wood Back, 5x11½ inches; Wood Hopper, Varnished, with Glass Front and Japanned Cast Slide Lid; Chilled Iron Grinders; Front Thumb Screw Adjustment; Japanned Cast Iron Body and Handle; Detachable Iron Cup.

Per Dozen

No. X - X-RAY; Capacity of Hopper 1 lb; Height over all 13 inches; Extreme Width 4¾ inches; Canister 7x4¾ inches; Weight per dozen about 60 lbs. $9 00

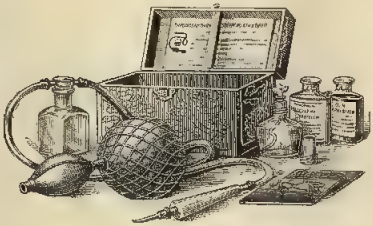
One-twelfth Dozen in a Carton; One Dozen in a Case.

PYROGRAPHY

Wood Burning, Artistic, Educational, and Practical

New patterns, all designs of every art are being applied by the use of modern presses especially designed for the purpose; the ink used being a burnt wood brown, the adaptability of which will be readily recognized

PYROGRAPHIC OUTFITS



No. 50

No. 52

No. — Per doz.

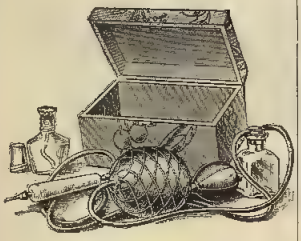
48 Pyrographic outfit, designed basswood box, 6½x4¾x4 inches, contains 1 glass spirit lamp with aluminum cover, 1 benzine bottle, 2 feet black rubber tubing, 1 black rubber bulb, 1 cork handle, 1 nickel-plated metal union, 1 platinum point, 1 instruction book **$24 00**

50 Pyrographic outfit, large designed basswood box, size 9¾x4x4½ inches, contains 1 glass spirit lamp, 1 benzine bottle 2 feet pure India rubber tubing, 1 rubber bulb, 1 cork handle, 1 nickel plated metal union, 1 platinum point, 2 practice pieces, 1 instruction book, 1 large bottle pyro stain 1 large bottle pyro varnish **$48 00**

No. — Per doz.

51 Pyrographic outfit, large designed basswood box, size 7½x5x4½ inches, contains 1 alcohol lamp, 1 benzine bottle with belt hook, 2½ feet pure India rubber tubing, 1 medium red India rubber bulb 1 platinum point, 1 nickel-plated metal union, 1 cork handle with swivel attachment 2 practice pieces 1 instruction book **$60 00**

52 Pyrographic outfit, large designed drop-front basswood box, 8¾x5½x5 inches contains 1 large alcohol lamp 1 large benzine bottle with belt hook, 1 large red India rubber bulb, 3 feet pure India rubber tubing, 1 platinum point, 1 improved benzine regulator, 1 cork handle with swivel attachment, 1 large bottle pyro varnish, 1 large bottle pyro stain, 1 instruction book **$84 00**



No. — Per doz.

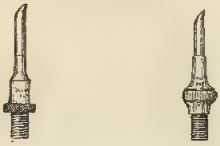
49 Pyrographic outfit, designed basswood box, size 7½x5x4½ inches, contains 1 benzine bottle, 1 spirit lamp with aluminum cover, 1 best India rubber bulb, 2 feet pure India rubber tubing, 1 nickel-plated metal union, 1 cork handle 1 platinum point, guaranteed, 1 instruction book—Pyrography Simplified **$33 60**

No. — Per doz.

53 Pyrographic outfit, large drop-front designed box, size 9¼x6x5 inches, contains 1 large alcohol lamp, 1 large benzine bottle with belt hook, 3 feet pure India rubber tubing, 1 large pure India rubber bulb, 7 best platinum points, 1 improved benzine regulator, 1 cork handle with swivel attachment, 1 bottle heavy body pyro varnish 1 bottle pyro French varnish, 2 practice pieces, 1 instruction book, 8 half-ounce bottles pyro stain, assorted colors. **$120 00**

PYROGRAPHY—Continued

PLATINUM POINTS



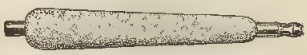
Nos 60–66

No.		Per doz
60	Curved or combination point, can be used for fine and coarse outlining, light shading and, owing to its curve, permits the tracing of irregular lines	$18 00
61	Same as No. 60	24 00
62	" No. 60	30 00
63	Flat straight point for heavy outlining or a general background	30 00
64	Curved combination point	36 00
65	Pointed, for fine lines and general work on leather and velvets	48 00
66	Very fine curved combination point	60 00

All of these points are guaranteed to fire, the higher grades, of course, being more durable

No. 70

No.		Per doz.
70	Gas pen outfit to adjust to an ordinary gas burner	$6 00



No. 71

No.		Per doz.
71	Cork handle, straight	$3 00
72	" curved	4 56
73	Rubber bulb, small size	14 40
74	" " medium size	16 80
75	" " large size	19 20

CUT FLUSH SOLID WHITE BASSWOOD PANELS

All of our panels are put up in assorted designs and the decorations used cover a range from the most simple to the finest

No 100

No. 100½

No 101

No. 103, 1/4

No 104

No 105

No		Per doz.
100	Cut flush, rectangle, size 4x6 inches, 6 designs assorted, girls' heads, dogs, windmills, Indians, etc	$0 72
100½	Cut flush, heart-shaped panels, size 5x5 inches, 6 designs assorted, girls' heads, landscapes, etc	80
101	Cut flush oval panel, size 6x4 inches, 6 designs assorted, girls' figures, hunting dog, Indian Heads, sea captain, etc	72
101½	Cut flush diamond panel, size 5x5 inches, three designs assorted	80
102	Cut flush rectangle, size 5x7 inches, 6 designs assorted, dogs' heads, juvenile figures, etc	80
102½	Cut flush spade-shaped panel, size 8½x5½ inches, assorted girl's head designs	80
103	Cut flush oval rectangle, size 7x5 inches, 6 designs assorted Indian heads, cats, hunting dogs, etc	80
103½	Cut flush plug-shaped panel, diameter 6 inches, girl's head figures	80
104	Cut flush circle, diameter 6 inches, 6 assorted designs, landscapes, seascapes, windmill, etc	80
105	Cut flush rectangle panel size 4x8 inches, 6 assorted designs, hunting dogs, fishermen, Dutch figures, etc	80

BEVELED EDGE SOLID WHITE BASSWOOD PANELS

These bevel-edge panels are guaranteed not to warp, being reinforced with stays, the bevel edge presenting a striking border when decorated.

No 2

No 3

No 1

No.		Per doz.
1	Bevel-edge circle, diameter 5 inches, 6 designs assorted, dogs' heads, windmill, rabbits, Dutch figures, etc	$1 80
2	Bevel-edge oval, size 6x4 inches, 6 designs assorted	1 60
3	Bevel-edge rectangle, size 4x6 inches, 6 designs assorted, seaboard babies, Indian heads, Scotch collies, etc	1 60

BEVELED EDGE SOLID WHITE BASSWOOD PANELS

Continued

No.		Per doz
4	Bevel-edge long oval, size 10x5 inches, 6 designs assorted hunting trophies, hunting dogs, Indians in canoes, etc	1 80
5	Bevel-edge panel, broad oval, size 8x6 inches, thoroughbreds, children at play, etc	1 80
106	Cut flush oval panel, size 8x4 inches, 6 designs assorted, kittens, plays, landscapes, etc	80
107	Cut flush rectangle panel, size 6x8 inches, 6 designs assorted, hunting scenes, children at play, puppies in basket, etc	1 20
108	Cut flush oval panels, size 8x6 inches, 6 designs, windmills, floral, teddy bears, etc	1 20
109	Cut flush rectangle panels, size 10x5 inches, 6 designs assorted, girls' heads, kittens, etc	1 20
110	Cut flush oval panel, size 8x10 inches, 6 designs assorted, windmills, flowers, sports, etc	1 80
111	Cut flush rectangle panel, size 12x6 inches, 6 designs assorted hunting scene, horses' heads, seashore, etc	1 80

No 112

No.		Per doz.
112	Cut flush oval panel, size 8x12 inches, 4 designs assorted windmill, hunting dogs, landscapes, etc	$1 80

PYROGRAPHY—Continued

BEVELED EDGE SOLID WHITE BASSWOOD PANELS Continued

No. 6

No. Per doz.
6 Bevel edge, circle, diameter 8 inches, 6 designs assorted animals, landscapes, etc. $1 80
7 Bevel edge, circle, diameter 10 inches, 6 designs assorted, bathing scene, bulldog, horses' heads, etc. 3 00

No. 8

No. Per doz.
8 Bevel edge, long oval, size 14x7 inches, landscapes and seascapes, rural scenes, setter dogs, etc. $3 00
9 Bevel edge, broad oval, size 10x8 inches, 6 designs assorted, ideal woman heads, stag in forest, sportsman's trophies, etc. 2 70

No. 12

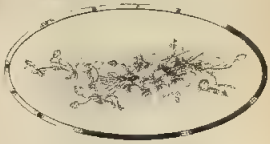
No. Per doz.
12 Bevel edge, rectangle, size 12x16 inches, landscapes, floral designs, etc. $5 00

No. 13

No. Per doz.
13 Bevel edge, circle, diameter 15 inches, 6 designs assorted, ideal woman heads, Indian heads, hunting dogs with game, etc. $6 48

No. 113

No. Per doz.
113 Bevel edge, long oval, size 12x6 inches, 12 designs assorted, buildings, landscapes, boy fishing, etc. $2 40



No. 14

No. Per doz.
14 Bevel edge, long oval, 20x10 inches, 6 assorted designs, floral pieces, fruit, fish, etc. $6 48

No. 6

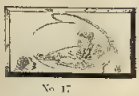
No. Per doz.
15 Bevel edge, rectangle, size 14x17 inches, 6 designs assorted, boy with fish, ideal heads, etc. $7 20
16 Bevel edge, long rectangle, size 12x24 inches, 6 assorted designs, fish, ducks, hunting dogs, etc. 9 60

No. Per doz.
19 Photo frame panel, heart shape, 12x10 inches, opening 4x6 inches for cabinet photograph, easel back $7 20
20 Post card shadow box, panel, size 5x14 inches, 2 openings each 4x6 inches 8 00
21 Photo panel, size 8x10 inches, openings 4x6 inches 8 00

No. 114

No. 116

No. Per doz.
114 Bevel edge, broad oval, size 12x9 inches, 12 designs assorted, lions, horses, dogs, windmill, etc. $3 50
116 Bevel edge, long rectangle, size 8x16 inches, 6 designs assorted, fruits, flowers, landscapes, etc. 4 00



No. 17

No. 8

No. Per doz.
17 Post card shadow panel for holding post cards, size of panel 5x8 inches, one opening 4x6 inches $4 00
18 Photo frame panel, size 7x10 inches with 4x6-inch opening for cabinet, with easel back 6 00

No. 115

No. Per doz.
115 Bevel edge, circle, diameter 12 inches, 12 designs assorted, rabbits, farm house, Scotch collies, ideal heads, etc. $4 00

No. 117

No. Per doz.
117 Bevel edge, large circle, diameter 18 inches, 6 designs assorted, lion heads, ideal woman heads, landscapes, etc. $9 60

PYROGRAPHY—Continued

White basswood pyrographic novelties, consisting of trinket, jewel glove, handkerchief boxes, cigar jars, smoker sets, pipe racks, toilet mirrors, wall shelves, wall racks, hat racks, lamp shades, book racks, waste paper baskets, etc. Many of these novelties are entirely new and shown here for the first time.

No. 22

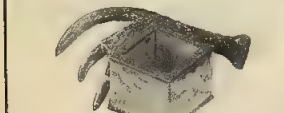
No. 22 — Per doz. pieces
Assortment contains two each, match holder, toothpick holder, and napkin rings, with copper, brass, and gun metal trimmings, packed ½ dozen in box $2 50

No. 23

No. 23 — Per doz. pieces
Assortment contains one each, square ash tray, octagon ash tray, octagon cigar holder on small shield, octagon match holder on 4x6-inch oval panel, assorted copper, brass, and gun metal trimmings, ½ dozen in box $6 00

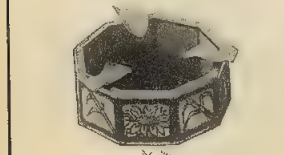
No. 24

No. 24 — Per doz.
Whisk holders 7½x9, shield with brass posts and rail $8 00



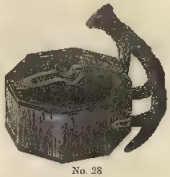
No. 25

No. 25 — Per doz.
Square match holders, with stag handle, assorted copper, brass, and gun metal trimmings $8 00



No. 26

No. 26 — Per doz.
Octagon ash tray, assorted copper, brass, and gun metal trimmings $8 00
27 Double wall metal holders 8 00



No. 28

No. 28 — Per doz.
Octagon ash tray with stag handle, assorted trimmings $12 00

No. 29

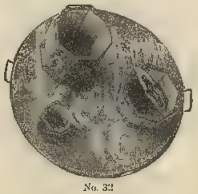
No. 29 — Per doz.
Octagon cigar holder, with stag handle, assorted trimmings $12 00

No. 30

No. 30 — Per doz.
Smoking set, octagon ash and match holder on fancy tray, gun metal trimmings $12 00

No. 31

No. 31 — Per doz.
Octagon cigar jar, copper trimmings $12 00



No. 32

No. 32 — Per doz.
Three-piece smoking set on circular tray, gun metal trimmings $20 00

No. 34

No. 33 — Per doz.
Pipe rack, 11x8 . . . . . $4 00
34 Necktie holder, size 7x14, oval panel with brass posts and rod 8 00

No. 35

No. 35 — Per doz.
Wall rack, "Shield," measures 16x10, large French stag antlers and four gun metal coat hooks $54 00

TOILET MIRRORS

No. 35½

No. 40

No. — Per doz.
35½ Long handle crown back, 4-inch glass mounted in steel bezel, assorted designs $8 00
36 Long handle crown back, 4½-inch glass, mounted in steel bezel, assorted designs 12 00
37 Ring handle crown back, 4½-inch glass, mounted in steel bezel, assorted designs 12 00
38 Long handle, crown back, 5-inch glass, mounted in steel bezel, assorted designs 12 00

PYROGRAPHY—Continued

TOILET MIRRORS

No. Per doz.
39 Ring handle, crown back, 5-inch glass mounted in steel bezel, assorted designs $12 00
40 Long handle, crown back, 6-inch glass, mounted in steel bezel, assorted designs 18 00

No. 43

No. Per doz.
43 Long handle, "La Tosca," 5-inch glass, mounted in steel bezel, assorted designs $18 00

No. 46

No. Per doz.
46 Long handle bonnet mirror 6x8-inch glass, mounted in steel bezel, assorted designs $36 00

No. 41

No. Per doz.
41 Ring handle, crown back, 6-inch glass, mounted in steel bezel, assorted designs $18 00

No 44

No Per doz.
44 Long handle bonnet mirror, 4x6-inch glass, mounted in steel bezel, assorted designs. $18 00

No 42

No. Per doz.
42 Long handle "La Tosca," 4½-inch glass, mounted in steel bezel, assorted designs $18 00

No. 45

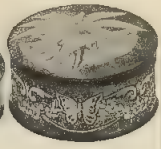
No. Per doz.
45 Long handle bonnet mirror, 5x7 inch glass, mounted in steel bezel, assorted designs $26 88

No 47

No. Per doz.
47 Long handle bonnet mirror, 7x9-inch glass, mounted in steel bezel, assorted designs $48 00

PYROGRAPHY—Continued

No. 118

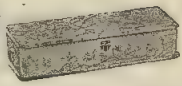


No. 119

No. — Per doz.
118 Round jewel or trinket box, 4½ inches in diameter, 2¼ inches high, the top edge is finished with metal rim, assorted designs $4 00
119 Round jewel or trinket box, diameter 5½ inches, width 2½ inches, assorted designs, top edge finished with metal rim 6 00

No. 123

No. 131



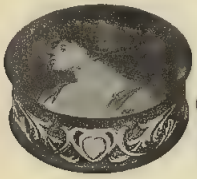
No. 132

No. — Per doz.
123 Round cuff box, diameter 5 inches, height 4½ inches, top edge finished with metal rim assorted designs $7 20
124 Oval jewel box, diameter 6½ inches, height 4½ inches, top edge strengthened with metal rim, assorted designs 6 00

131 Glove box, length 12½ inches, width 4½ inches, height 2¾ inches, assorted designs $6 00
132 Glove box, length 12½ inches, width 4½ inches, height 3¾ inches, assorted designs 7 50

No. 133

No. — Per doz.
133 Collar and cuff box 6x6 inches, height 5½ inches, assorted designs $6 00



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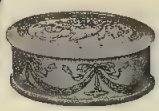


No. 125

No. 126

No. 134

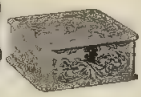
No. — Per doz.
120 Round handkerchief box, diameter 6½ inches, height 2¼ inches, assorted designs, top edge finished with metal rim 37 20

No. — Per doz.
125 Oval jewel box diameter 6½x4½ inches, height 2¾ inches assorted designs, top edge strengthened with metal rim 36 00
126 Oval handkerchief box, diameter 7½x5½ inches, height 2¾ inches, assorted designs, strengthened with metal rim 7 50

No. — Per doz.
134 Collar and cuff box combination, 7x7 inches, height 5 inches, assorted designs $9 00

No. 121

No. 127



No. 128

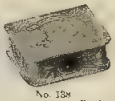
No. 135

No. — Per doz.
121 Round handkerchief or collar box, diameter 7½ inches, height 2¾ inches, assorted designs, top edge finished with metal rim 36 00

No. — Per doz.
127 Oval handkerchief or sewing box, diameter 8½ inches x6½ inches, height 2¾ inches, assorted designs, top edge strengthened with rim 39 00
128 Square handkerchief box, size 6x6 inches in diameter, height 2¾ inches, assorted designs 4 00

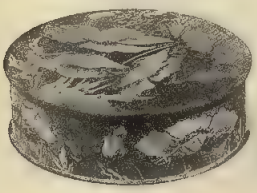
No. — Per doz.
135 Collar and cuff box, size 8x8 inches, height 5½ inches, with separate partition for cuffs, assorted designs $12 00

No. 136



No. 138

No. — Per doz.
136 Stationery box, size 7¾x7¾ inches height 2¾ inches, arranged with partition, assorted designs $8 00
138 Playing card box, size 4½x3½x2 inches, holding two packs, assorted designs 3 50



No. 122

No. 129

No. 130

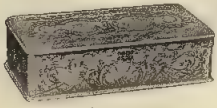
No. 137

No. — Per doz.
122 Round handkerchief or sewing box, diameter 8½ inches height 2¾ inches, assorted designs, top edge finished with metal rim $10 00
129 Glove box, length 13 inches, width 3¾ inches, height 2¾ inches assorted designs $4 80
130 Handkerchief box, diameter 7x7 inches, height 3¼ inches, assorted designs 6 00
137 Post card box, size 7½x4½ inches, height 6½ inches, assorted designs $8 00

PYROGRAPHY—Continued

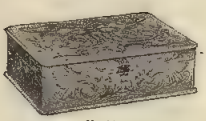
No. 139

No. 139 Necktie box, length 18 inches, width 11 inches, height 2¾ inches, assorted designs — Per doz. $10 00



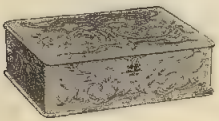
No 140

No. 140 Lace box, length 15 inches, width 11½ inches, height 3¾ inches, assorted designs — Per doz. $14 00



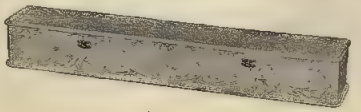
No. 141

No. 141 Photo box, length 11 inches, width 9 inches, height 4¾ inches, assorted designs — Per doz. $14 00



No. 142

No. 142 Large photo or sewing box, length 15 inches, width 10½ inches, height 4½ inches, assorted designs — Per doz. $18 00



No 143

No. 143 Large dresser box, length 20 inches, width 5½ inches, height 4 inches, assorted designs — Per doz. $26 40

No 195

No. 195 Key rack, fancy Dutch shoe panel, size 5x11 inches — Per doz. $3 50

No. 144

No 145

No. 144 Whisk holder, bevel oval panel, size 4x6½ inches, (without whisk broom) — Per doz. $4 00

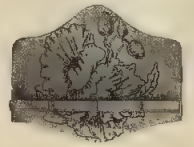
No. 145 Whisk holder, bevel butterfly, size 8½x9½ inches, assorted designs, (without whisk broom) — $5 00

No. 146

No 147

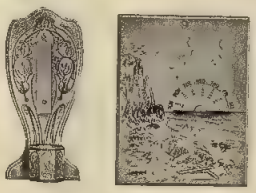
No. 146 Perpetual Calendar, bevel panel, size 4x6 inches, decorations — Per doz. $4 00

No. 147 Thermometer, bevel panels, size 4x6 inches, assorted designs — $2 50



No. 148

No. 148 Tooth brush holder, size 5x6 inches, assorted decorations — Per doz. $1 80



No 149

No. 149 Combination thermometer and match holder, 4½x9½ inches — Per doz. $5 00

No. 150 Perpetual calendar bevel panel, size 7x9 inches, assorted decorations — $5 00

No 151

No. 151 Perpetual calendar and thermometer, bevel panel, size 7x9 inches — Per doz. $6 00

No 152

No. 152 Double wall match safe, bevel panel, 6x8 inches, assorted figures — Per doz. $6 00

No. 153

No. 153 Double wall match safe, butterfly panel, 9½x9½ inches — Per doz. $7 50

No 154

No. 154 Necktie holder, fancy panel, to hang on wall, size 4½x9½ inches — Per doz. $2 50

PYROGRAPHY—Continued

No 156

No. 156 Key rack, padlock shape, panel size 9½x11½ inches, assorted decorations . . . . . Per doz. $6 00

No. 157

No. 157 Necktie holder, bronze metal rail, on Dutch shoe panel, size 5x11 inches . . . . Per doz. $4 00

No 158

No. 158 Necktie rack, bronze metal rail mounted on canoe panel, size 5x18 inches Per doz. $6 00

No. 159

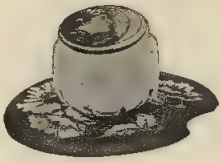
No. 159 Pipe rack, pipe rings mounted on panel, size 7x15 inches, with match safe . . . . . Per doz. $10 00

No 160

No 161

No. 160 Glass cigar jar, 4 inches in diameter, height 4¾ inches, with base wood designed cover, assorted figures. . Per doz. $8 00

161 Glass cigar jar, diameter 4 inches, height 5 inches, designed basswood cover, assorted figures. . . . 12 00



No 162

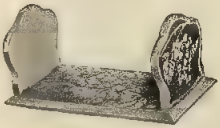
No. 162 Glass puff jar on fancy base, 5½x7½ inches, complete with puff Per doz. $10 00

No. 163

No. 163 Puff box and hair receiver on fancy base, size 7½x18 inches, assorted designs . . . . . Per doz. $12 00

No. 164

No. 164 Book rack, size 5x10 inches, with folding ends . . Per doz. $4 00



No. 165

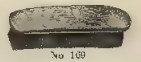
No. 165 Book rack, size 6x12 inches, fancy folding ends, assorted decorations . . . . . Per doz. $9 00

No 166

No. 166 Extension book rack, size 6x14 inches, extension to 20 inches, folding ends, assorted designs. . . . . Per doz. $10 00

167 Tray and hair brush, size 4½x12 inches complete 20 00

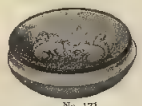
168 Tray and cloth brush, 2½x10 inches, complete 18 00



No 169

No. 169 Hat brush, five rows white horse hair, in lined box . . . . . Per doz. $12 00

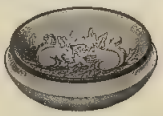
No 170



No 171

No. 170 Pin tray, bronze metal rims, diameter 4 inches, assorted designs . . . . Per doz. $4 00

171 Nut bowl, bronze metal rims, diameter 5 inches, assorted designs 7 00

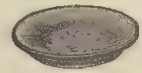


No. 172

No. 172 Nut bowl, bronze metal rims, diameter 6 inches Per doz. $8 00

No. 173

No. 173 Nut bowl, bronze metal rims, diameter 8 inches Per doz. $14 00



No 174

No. 174 Pin or card tray, bronze metal rim, diameter 6 inches . . . . . Per doz. $7 00

No. 175

No. 175 Card tray, bronze metal rims, diameter 7 inches Per doz. $8 00

No 176

No. 176 Waste paper basket 14 inches high, packed flat, complete with lacings . . . . Per doz. $16 00

ICE TOOLS.

WM. T. WOOD & CO.'S

ICE PLOWS.

TEMPERED AND POLISHED TOOL STEEL TEETH; Cast Steel Frame; Hardwood Handles, Painted Black

By Making Frequent Calls on our Mail Order Department, you will be able to Keep your Stock Complete and Up-to-date, and hold your trade at home.

No. 371—9 CUTTING TEETH, 6x5½ inches; Length of Frame 60 inches; Length of Handles 41 inches; Weight each about 115 lbs ..... Each $48.00

No. 373—7 CUTTING TEETH, 7x6 inches; Length of Frame 55 inches; Length of Handles 41 inches; Weight each about 105 lbs ..... Each $44.00

No. 374—8 CUTTING TEETH, 8x6½ inches; Length of Frame 64 inches, Length of Handles 41 inches; Weight each about 115 lbs. ..... Each $50.00

No. 375—7 CUTTING TEETH, 8x6½ inches; Length of Frame 8 inches Length of Handle 41 inches; Weight each about 115 lbs. ..... Each $48.00

No. 376—7 CUTTING TEETH, 9x6½ inches; Length of Frame 58 inches; Length of Handle 41 inches; Weight each about 120 lbs. ..... Each $51.00

No. 377—6 CUTTING TEETH, 9½x7 inches, Length of Frame 56 inches; Length of Handles 41 inches; Weight each about 125 lbs. ..... Each $53.00

Packed Loose, with Wood Case on Teeth.

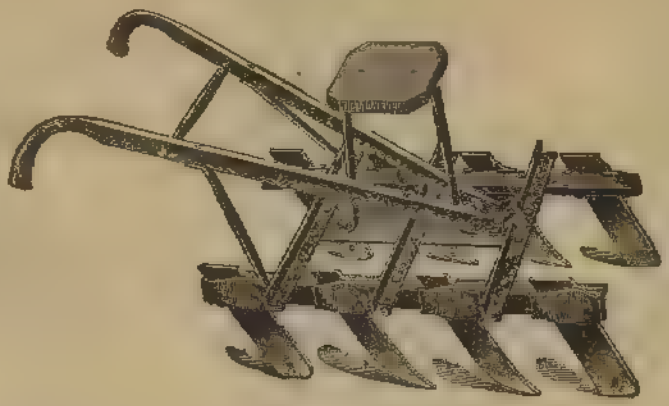
ICE TOOLS.

WM. T. WOOD & CO.'S

ICE PLOWS.

TEMPERED AND POLISHED TOOL STEEL TEETH. Cast Steel Frame; Hardwood Handles and Seat; Painted Black

The 6-tooth and 4-tooth Plows are set exactly on the same principle, the Rear Blank and the Rear Tooth always being alike in Depth and the successive Teeth each ¼ inch less



Where the Cutting of Ice is done in close quarters the horse can be hitched close to the Plow, as the driver's weight serves to keep the Plow down. If desired to plow without riding, a rope 6 or 8 feet long should be used

TWIN-CUT PLOW. Each

No. 300—4 TEETH 8x3 INCHES, TWO CUTTERS each Side; Length of Frame 45 inches; Length of Handle 47 inches; Weight each about 125 lbs. $17.00

No. 301—6 TEETH 9x3 INCHES, THREE CUTTERS each Side; Length of Frame 49 inches; Length of Handle 47 inches; Weight each about 150 lbs. 20.00

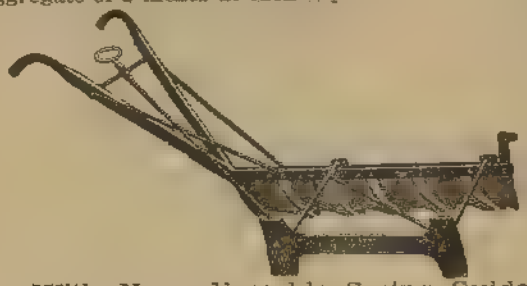
All of above Cut Cakes 14, 16, 18, 20, 22, 24, 26, 28, 30 or 32 inches Wide, by Adjusting the Width of Frame.

The Runners or Guide Plates, at the front and the rear, are 4 inches Wide to give stiffness to the bearings.

The Handles are put on for the purpose of lifting the Plow when turning it at the ends of the grooves

We Set the Teeth to Cut ¼ inch each. Thus, on Plow No. 302 the Rear Blank or Runner is Set 10 inches Deep, the Rear Tooth 10 inches Deep, the Second Tooth 9¾ inches, the Third Tooth 9½ inches the Fourth Tooth 9¼ inches and the Front Blank on Runner 9 inches.

Both sides of the Plow must be set exactly alike. The 8 tooth Plow will thus cut 1 inch to each side an aggregate of 2 inches at each trip



With Non-adjustable Swing Guide.

With Patent Adjustable Swing Guide.

DAIRYMEN'S "ICE KING" PLOWS Tempered and Polished Tool Steel Teeth. Cast Steel Frame; Hardwood Handles; Painted Black.

Each

No. 315—5 CUTTING TEETH, 8x7½ INCHES; With 22 inch Swing Guide, complete with Shoe; Length of Frame 51 inches; Length of Handle 41 inches; Weight each about 115 lbs. $25.00

Made expressly for Farmers Butchers and Dairymen, on the same principle as Regular Ice Men's Plows, and is therefore capable of very severe work under all conditions of weather. Does the work of fifty men with saws.

Each

No. 320—8 INCH; 5 CUTTING TEETH, 8x7½ INCHES; With 14 to 22 inch Patent Adjustable Swing Guide; Length of Frame 51 inches; Length of Handle 41 inches; Weight each about 125 lbs. $28.00

The Patent Adjustable Swing Guide on the "Ice King" is a perfect arrangement for those who need to cut more than one size of cakes. For customers who always cut the same size square cake the No. 315 "Ice King" Plow is recommended, as it is naturally more firm.

The "Ice King" is filed with a feed to cut 1¾ inches at a draft for a light horse, but it can be filed in a few moments to feed 2 inches for a heavier horse.

A horse in four runs, at a pace of three miles an hour, would cut the equivalent of a groove 7 inches deep and 66 feet long in one minute, thus equaling the sawing capacity of fifty men in 12 inch ice for the same time.

Packed Loose

ICE TOOLS.

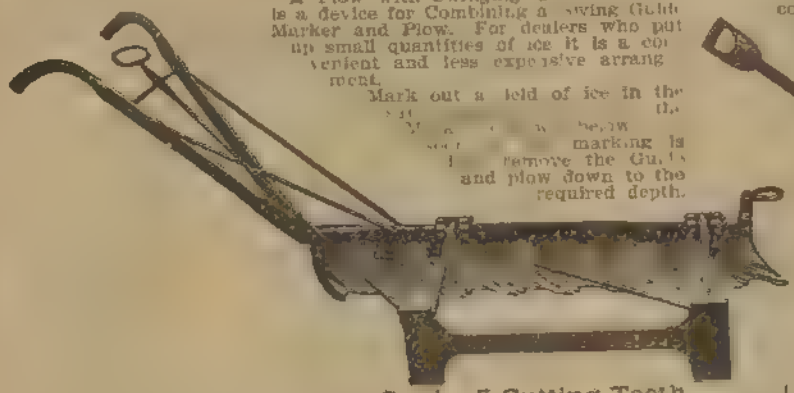
WM. T. WOOD & CO'S

ICE PLOWS.

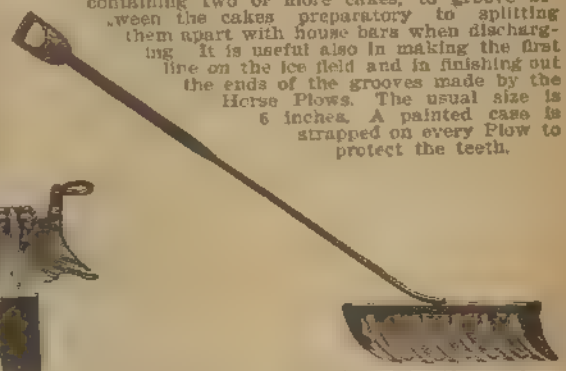
TEMPERED AND POLISHED TOOL STEEL TEETH; Cast Steel Frame; Hardwood Handles; Painted Black.

A Plow with Swinging Guide attached is a device for Combining a Swing Guide Marker and Plow. For dealers who put up small quantities of ice it is a convenient and less expensive arrangement.

Mark out a field of ice in the [illegible] marking is [illegible] remove the Guide and plow down to the required depth.



Is used principally where ice is housed in blocks containing two or more cakes, to groove between the cakes preparatory to splitting them apart with house bars when discharging. It is useful also in making the first line on the ice field and in finishing out the ends of the grooves made by the Horse Plows. The usual size is 6 inches. A painted case is strapped on every Plow to protect the teeth.



With 24 inch Swing Guide, 7 Cutting Teeth.

Nos.	385	386	388	391
Teeth, inches....	6x6½	7x6½	8x7½	10x7½
Length of Frame, inches	55	57	57	60
Length of Handle, inches	[illegible]	41	41	41
Weight each about, lbs	[illegible]	140	150	160
Each	....$50.00	52.50	56.50	61.50

Hand, 5 Cutting Teeth and 2 Guide Teeth

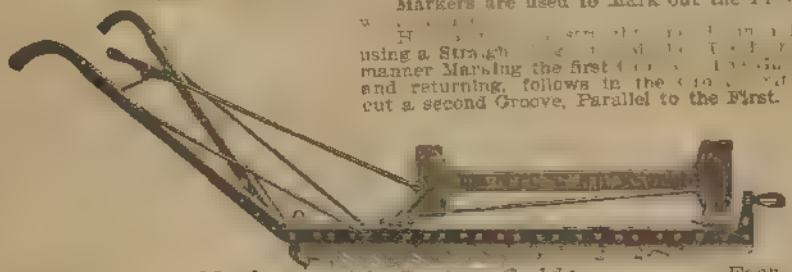
Nos.	409	410
Teeth, inches ..	6x[illegible]	7x[illegible]
Length of Frame, inches	[illegible]	[illegible]
Length of Handle, inches.	[illegible]	57
Weight each about, lbs.....	18	[illegible]
Each	$16.[illegible]	17.50

Packed Loose.

ICE MARKERS.

Tempered Tool Steel Teeth; Cast Steel Frame and Guide; Hard wood Handles, Painted Red.

Markers are used to Mark out the Field of Ice into Squares preparatory to Grooving [illegible] using a Straight [illegible] is line across the field in this manner Marking the first [illegible] over the back of the Marker and returning, follows in the [illegible] for the teeth to cut a second Groove, Parallel to the First.



Marker, with Swing Guide — Each

No. 355—11 Cutting Teeth; Length of Frame 80 inches; Length of Handles 41 inches; Complete with 22 inch Swing Guide; Weight each about 145 lbs. ..... $[illegible]

Each Marker is provided with an Adjustable Depth Gauge which is a great convenience in regulating the depths of the [illegible] as changes in the condition of the [illegible] require, and in case it is desired to plane off a light sur[illegible] of the [illegible] of the Plane shown [illegible]

ICE PLANERS.

Field Ice Planer.

[illegible] Knife of the Planer [illegible] the [illegible] sides of [illegible] Knife will [illegible] Marker [illegible]

It is advisable [illegible] the marking out an [illegible] narrower than the 22-inch Planer to prevent any possible binding.

Patent Eureka Knife Bar.

Tempered Tool Steel Teeth; Cast Steel Frame, Hardwood Seat; Painted Black. — Each

No. 280—With one Patent Eureka Knife Bar; Width 22 inches, Length 41 inches; Width of Runners, [illegible] inches; Weight each about 135 lbs $35.00

The old-fashioned Straight Knife is such a slow Cutter, and requires so much power and such constant grinding, that we have discontinued making it.

The Field Ice Planer is made with a first-class Patent Knife Bar, having **Adjustable Teeth** of best tool steel quality, finely tempered, which can be set forward as they we[illegible]

This Style of Planer requires grooves to be made in the ice with a Marker or Swing Guide Plow, in which one side-plate of the Planer can run.

Mark out the field of ice with the Marker the same as for grooving, except that no cross-lines are needed.

Set the **adjustable depth-gauge** of the Marker so that the latter will groove the exact depth desired to plane off.

ICE TOOLS.

WM. T. WOOD & CO.'S

SPLITTING FORKS.

Tempered Tool Steel Tines; Soft Steel Handle; Painted Red.

No. 440—KNOB HANDLE, Length over all 4 feet 9 inches. 2 Tines, Outside 14 inches Long, 6 inches Wide; Weight each about 17½ lbs .. **$4.25** (Each)

No. 443—RING HANDLE; Length over all 4 feet 10½ inches, 2 Tines, Outside, 14 inches Long, 6 inches Wide, Weight each about 18 lbs ..... **$4.50** (Each)

These Splitting Forks are made with Long Tines, tapered so as to give great wedging power in the plow grooves without [illegible] the ice. Their weight makes them particularly useful in breaking off floats or large sheets from the ice [illegible] cannot be [illegible] for splitting the floats into [illegible] when the grooving is insufficiently deep or partially frozen. Designed particularly for use on heavy ice.

SPLITTING BARS.

LYNN.

No. 446—Tempered Tool Steel Tine, Polished Point, Iron Handle, Painted Red, Length over all 5 feet, Tine 18 inches Long, 5 inches Wide. Diameter of Handle ⅞ inch; Weight each about 18½ lbs ..... **$4.25** (Each)

This is preferred by some to the Splitting Fork for barring off.

FORK BARS.

Tempered Tool Steel Tines, Polished; Iron Handle Painted Red, Diameter of Handles ⅞ inch; Width of Tines 1 inch.

No. 448—KNOB HANDLE; Length over all 4 feet 6 inches, 4 Tine Fork, 8 inches Wide 8 inches Long, Weight each about 15½ lbs ... **$4.25** (Each)

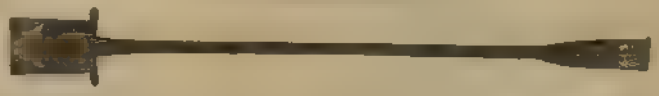
No. 449—RING HANDLE; Length over all 4 feet 9 inches, 4 Tine Fork, 8 inches Wide, 7¾ inches Long, Weight each about 16 lbs..... **$4.50** (Each)

No. 450 KNOB HANDLE Length over all 4 feet 9 inches, 3 Tine Fork, 6 inches Wide, 8⅜ inches Long, Weight each about 12½ lbs.. . **$4.00** (Each)

No. 451 RING HANDLE Length over all 4 feet 10½ inches, 3 Tine Fork 6 inches Wide 8⅜ inches Long, Weight each about 13 lbs .. .. **$4.25** (Each)

Fork Bars are forged with Chisel-shaped points, and are much superior to those made with prongs screwed in. Their use is principally for barring off floats or for general splitting purposes, and they are preferred by some to the Splitting Forks on account of covering a wider wedging surface in the groove.

BREAKING BARS.



Tool Steel, Tempered and Polished Blades; Handle Painted Red.

No. 454—Length over all 4 feet 8 inches Pad Blade 7½x4¾ inches, Chisel Blade 2¾ inches Wide; Diameter of Handle ⅞ inch Weight each about 16½ lbs . . . . . **$3.50** (Each)

This tool having a Blunt Wedge Shaped Pad Blade is used to insert in the plow grooves and thus detach the sheets or floats from the main body of the ice and also to break up those floats into strips. The Chisel End is merely for convenience in case a sharpened is required.

The Pad End is provided with Ears on which to bear the foot.

Packed Loose.

ICE TOOLS.

WM. T. WOOD & CO.'S

CALKING BARS.

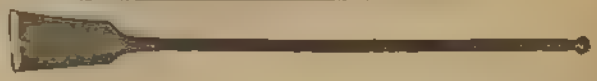
Each

No. 456—Tempered Tool Steel, Polished Blade; Hollow Iron Handle, Painted Red; Length over all 4 feet 6 inches; Blade 15x4¾ inches; Diameter of Handle 1 inch; Weight each about 9 lbs..... $2.50

This Bar is used to calk the ends of the grooves on the field of ice and on the floats before they are detached with the chisel made in grooving, in order to prevent the water from running in.

The Blade is made Long and Thin, suitable for calking the deepest grooves; and the handle is of gas-pipe, to make the tool light.

BAR OR PACKING CHISELS.



Each

No. 458—Tempered Tool Steel, Polished Blade; Handle Painted Red; Length over all 4 feet 7 inches; Blade 12x4¾ inches; Diameter of Handle 1 inch; Weight each about 15½ lbs... $3.50

The Bar Chisel is made with a Wide Blade, Beveled on one side and is used mostly to cut around the cakes in getting ice out of the house. It is also used for trimming off any unevenness of the blocks when stowing ice in the house and for breaking out the canal, cutting holes or any work requiring a fast cutting Chisel

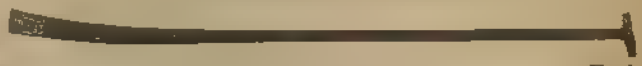
SUMMER BARS.

Each

No. 460—Heavy; Tool Steel Tempered Blade, Full Polished; Length over all 4 feet 4 inches; Blade 10x5¼ inches; Diameter of Handle 1 inch; Weight each about 17 lbs..... $5.00

This Bar is heavier than the Bar Chisel and is used in some localities for the double purpose of cutting around and striking up ice in the houses.

STARTING CHISELS.

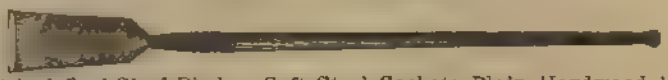


Each

No. 465—Tool Steel Tempered and Polished Blade; Handle Painted Red; Length over all 4 feet 7 inches; Blade 10x2¼ inches; Diameter of Handle 1⅛ inches; Weight each about 14½ lbs..... $3.50

The Starting Chisel or Striking-under Bar, is made for the purpose of starting up the blocks of ice in the house after they have been cut around with the Bar Chisel or Summer Bar, and is curved to prevent too great stooping of the body.

SOCKET CHISELS.



Each

No. 468—Tempered and Polished Tool Steel Blade, Soft Steel Socket; Plain Hardwood Handle; Length over all 4 feet 10 inches; Blade 12x3½ inches, Diameter of Handle 1½ inch, Weight each about 10 lbs $3.50

Similar to a Bar Chisel but wider and with a Wooden Handle, making it lighter in weight.

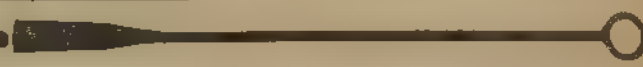
FLOOR SHAVERS.

Each

No. 470—Five Teeth; Tempered and Polished Tool Steel Blade; Soft Steel Socket; Plain Hardwood Handle, 1½ inch in Diameter, with D-Top; Length over all 4 feet 10 inches; Blade 6 inches Wide; Weight each about 6 lbs..... $3.00

Floor Shavers are very useful in Leveling a Floor of ice in house or vessel, being bent for convenience in operating. The Toothed Floor Shaver cuts rapidly and easily, and the Patented Rocking Blade causes the Feed to be accurate.

SPLITTING CHISELS.



Each

No. 474—KNOB HANDLE; Tempered Tool Steel Blade, Polished; Iron Handle 1 inch in Diameter, Painted Red; Length over all 4 feet 6 inches; Blade 10½x3 inches; Weight each about 13½ lbs..... $2.25

Each

No. 476—RING HANDLE; Tempered Tool Steel Blade, Polished; Iron Handle 1 inch in Diameter, Painted Red; Length over all 4 feet 7½ inches; Blade 10½x3 inches; Weight each about 14 lbs..... $2.50

The Splitting Chisel is made with a narrow blade and with a gradual bevel on both sides. It is used to split blocks or strips into cakes, either in the canal or on the platform, and also comes into use for "wetting down" an ice field and for various other purposes, being a light and handy tool.

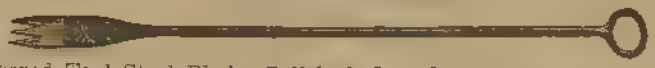
It is a favorite around artificial ice factories.

Packed Loose.

ICE TOOLS.

WM. T. WOOD & CO.'S

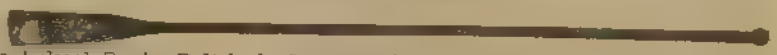
SAW TOOTH CHISELS.



No. 481—Three Tooth, Tempered Tool Steel Blade, Polished; Iron Ring Handle, 1 inch in Diameter, Painted Red; Length over all 4 feet 7½ inches; Blade 10½x3 inches; Weight each about 14 lbs. ..... Each $3.00

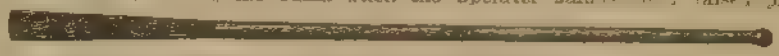
When grooves become frozen, or are of insufficient depth, this style Chisel is very effective.

CANAL CHISELS.



No. 490—Tempered Tool Steel Blade Polished, Iron Handle, Painted Red; Length over all 6 feet Blade 10½x3 inches; Diameter of Handle 1 inch; Weight each about 14 lbs. ..... Each $2.75

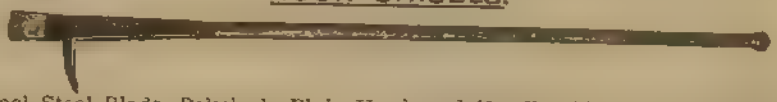
This Canal Chisel is intended for use in the Canal when the Operator stands on a raised platform.



No. 492—Tempered Tool Steel Blade, Polished; Plain Hardwood Handle, Diameter 1¼ inches; Length over all 7 feet; Blade 10½x3 inches; Weight each about 7½ lbs. ..... Each $2.50

Much lighter than No. 490, and sometimes preferred when the ice is well grooved.

HOOK CHISELS.



No. 494—Tempered Tool Steel Blade, Polished; Plain Hardwood Handle, Diameter 1½ inches, Length over all 7 feet, Blade 10½x3 inches. Length of Hook 4½ inches; Weight each about 7½ lbs. ..... Each $3.00

The Hook Chisel is a Canal Chisel and the Hook combined. Is heavy enough for splitting well, the Hook being secondary in importance.

SEPARATING CHISELS.

No. 495.

Tempered Tool Steel Blade, Polished; Iron Handle, 1 inch in Diameter, Painted Red; Length over all 4 feet, 6 inches; Blade 16x3¼ inches.

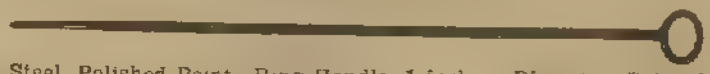
Each

No. 495—KNOB HANDLE; Weight each about 14 lbs. $2.75

No. 496—RING HANDLE; Weight each about 14 lbs. 3.00

This Chisel has a Long, Thin Blade and is designed for separating cakes of ice in the ice house when packed on edge.

NEEDLE BARS.



No. 484—Tempered Tool Steel Polished Point Ring Handle, 1 inch in Diameter, Painted Red; Length over all 5 feet; Weight each about 11 lbs. ..... Each $2.00

The Needle Bar is a very light tool for splitting off cakes in the canal and where the slow grooving is well done it is liked better than the heavier Chisels.

POLE GRAPPLES.

Tool Steel, Tempered Points.

Each

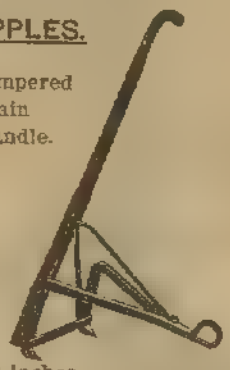
No. 433—WITH PLAIN HARDWOOD HANDLE; Drop 8 inches; Length of Frame 23½ inches; Length of Handle 60 inches. $4.35

No. 434—WITHOUT HANDLE; otherwise Same as No. 433 ..... 3.75

The Grapple or Drag is used to draw cakes of ice up an inclined plane by horse or steam power in the absence of elevator machinery. A pole handle is attached by which to carry it down the incline though, often times, the grapple is arranged to slide back in a trough or upon a wire thus dispensing with the handle.

JACK GRAPPLES.

Tool Steel, Tempered Points; Plain Hardwood Handle.



Each

No. 436—Drop 8 inches $4.25

This kind of Grapple is employed for the same purposes as No. 433, being made with a stationary handle. It is considered better by some than the other pattern. It is easily changed from a right to a left hand Grapple.

Weight each about, No. 433, 16 lbs.; No. 434, 13 lbs.; No. 436, 19 lbs.
Packed Loose.

ICE TOOLS.

WM. T. WOOD & CO.'S

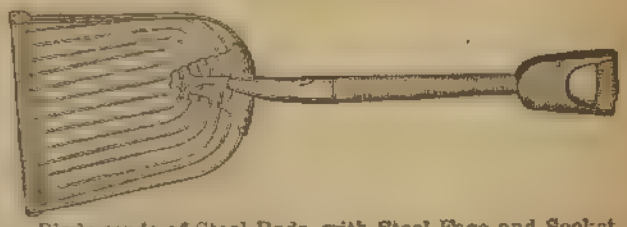
PLOW ROPES.

Each

No. 412—Length 8 feet; Diameter 1 inch; Weight each about 6 lbs. $1.75

Made of the best Manila Rope, with a Thimble spliced in [illegible] in the other end by which to fasten to the Plow

SIEVE SHOVELS.

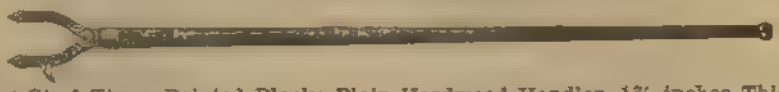


Blade made of Steel Rods, with Steel Face and Socket, Galvanized; Plain Hardwood Handle. Each

No. 506—Length of Handle 40 inches; Size of [illegible] 14 inches; Length over all 57 inches; Weight each about 7 lbs. $1.75

This substantially made Scoop is very useful in clearing [illegible] and pieces of ice, some [illegible] the Scoop Net.

ELEVATOR FORKS.



Cast Steel Tines, Painted Black; Plain Hardwood Handles, 1⅜ inches Thick. Each

No. 502—Length over all [illegible] feet [illegible] inches, Tines 6 inches Long; Weight each about 4 lbs. $1.70

[illegible] Hook for feeding [illegible] Elevator as two pushing points give better control of the cake than one. The Hook affords a means of holding back the ice, if necessary

SCOOP NETS.

Welded Steel Chain Scoop, with Steel Ring, Galvanized; Plain Hardwood Handle. Each

No. 505—Length over all 5 feet, Hoop 1[illegible] inches in Diameter, Weight each about [illegible] lbs. $3.00

[illegible] of not freezing so as to [illegible]

ICE AUGERS.

Forged Tool Steel; Polished Twist Shank and Handle, Painted Red. Each

No. 510—Diameter 1½ inches; Length over all 3 [illegible] 6 inches, Length of Twist 12 inches; Weight each about 6 lbs. $3.50

This Auger [illegible] with a long Shank enabling the [illegible] ice as well as in which to insert pins for stretching lines, towing floats and other purposes

MEASURING IRONS.

Each

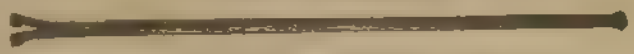
No. 512—Polished Cast Steel 22 inches Long, ⅝ inch Wide; Graduated in inches; Weight each about 1 lb. $0.50

ICE HOOK HANDLES.

No. 200 Turned Ash; Diameter 1¼ inches.

Length, feet ...	1½	5	6	7	8	10
Weight per dozen about, lbs.	24	36	38	42	48	60
Per dozen	$[illegible]	3.50	4.50	6.00	8.50	12.00

LINE MARKERS.



Cast Steel Blade; Plain Hardwood Handle Each

No. 500 Length over all 4 feet 8 inches; Length of Marker Blade 7½ inches; Diameter of Handle 1¼ inches; Weight each about 2 lbs. $0.90

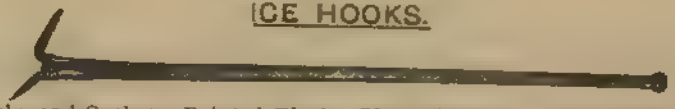
This [illegible] for the purpose of making a line [illegible] means of a straight edge in which to run the Marker [illegible] groove in marking [illegible] For those who have no Hand Plow it is a sufficient substitute for this purpose.

Packed Loose.

ICE TOOLS.

WM. T. WOOD & CO.'S

ICE HOOKS.



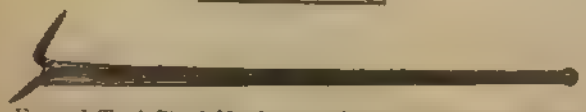
Forged Tool Steel Hooks and Sockets Painted Black Plain Selected Ash Handles, 1¼ inches in Diameter; **Length of Pike 3½ inches; Length of Hook 5 inches.**

No. 520											
Length, feet	3	3½	4	4½	5	6	8	10	12	14	16	18
Weight per doz. about, lbs.	34	34	36	40	40	48	52	68	72	84	90	114
Per dozen	$9 00	9 00	9 25	9 50	10 00	10 50	12 00	13 00	14 00	16.00	18 00	1 00

REPAIRS FOR ICE HOOKS.

	Per Dozen
No. 530 PULLERS FOR ICE HOOKS. Weight per dozen about 11½ lbs.	$4 50
No. 532 SHOVERS FOR ICE HOOKS; Weight per dozen about 1. lbs.	2 75
No. 534—RINGS FOR ICE HOOKS; Weight per dozen about 1½ lbs.	35
No. 536—RIVETS FOR ICE HOOKS (2 dozen required for 1 dozen hooks) Weight per dozen about ¼ lb.	03

CAR HOOKS.



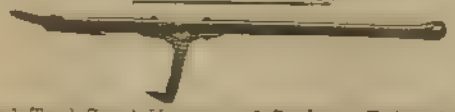
Forged Tool Steel Hooks and Sockets, Painted Black, **Plain Selected Ash Handles.**

Per Dozen

No. 522—Length over all 4 feet; Diameter of Handle 1¼ inches, Length of Pike 3½ inches Length of Hook 5 inches; Weight per dozen about 38 lbs. $12.00

Made the same as regular Ice Hooks, excepting that the shover iron extends 18 inches down the handle to strengthen and protect the wood for car use.

CANT HOOKS.



Forged Tool Steel Hooks and Sockets, Painted Black **Plain Selected Ash Handles.**

Per Dozen

No. 525—4 or 4½ foot Handles; Diameter 1¼ inches, Length of Pike 3½ inches Length of Hook at End 5 inches, Length of Hook at Middle 6½ inches; Weight per dozen about 48 lbs. $16 00

The use of the Cant Ice Hook is to "edge up" ice when taking it from cases or barges as is the custom with many Western packers

The Ice Hook though so simple in its appearance is absolutely necessary in the handling of ice and is to every ice dealer a very important part of a "set of tools."

ICE BREAKERS.

Tempered and Polished Tool Steel Tines, Soft Steel **Sockets; Plain Hardwood Handles.**

Each

No. 667—D HANDLE 3 Tine; Length over all 3 feet 7 inches Length of Tines 7¾ inches; Width at Points 3 inches Weight each about 5½ lbs. $3.50

Tempered and Polished Tool Steel Tines Soft Steel **Sockets; Plain Hardwood Handles.**

Each

No. 665—LONG HANDLE; 3 Tine Length over all feet 1 inch, Length of Tines 7¾ inches Width at Points 3 inches, Weight each about 5½ lbs. $3.50

Breakers are not made for splitting large cakes of ice but rather for reducing the cakes to coarse junks by a scaling process. They are very popular in fish markets and are suited to rapid work.

HOUSE RUNS.

Each

No. 720—6 feet; Cast Steel, Painted Black; Width 12 inches; Weight each about 75 lbs. $9.00

The House Run is useful in the houses and for loading wagons and is made with a pair of flanges on the sides to cause the ice to slide on easily.

ICE RUN IRONS.

Per Foot

No. 750—12, 14 or 16 foot Length (14 foot usual Length), Width 1¼ inches, Weight per foot about 1½ lbs. $0.06

To use on Wooden Runs made without sides. The V surface slightly grooves the ice as it runs over it and prevents the cakes from sliding off.

Packed Loose.

The Cole 1909 Solid Tire Automobile

HUGH DOLNAR.

The Cole Carriage Company, Indianapolis, Ind., U. S. A., large manufacturers of horse-drawn carriages for many years, has taken up the automobile and will offer for the season of 1909 a new design of solid tire motor car, bevel gear drive from a 14 H. P., opposed cylinder, air-cooled motor to a divided rear axle, here illustrated and described for the first time.

In selecting a type of automobile the Cole Company has carefully considered the requirements of the middle class of probable motor car purchasers, aiming at a thoroughly reliable production, always ready for use, offered at a reasonable price and having ample power for country roads, and above all else a car which should be free from the cost and delay caused by tire punctures and replacements.

NOTABLE FEATURES

The Cole solid tire chassis is an all new construction from a design in which low cost is successfuly combined with a thoroughly good construction and light weight, characteristic features which are always to the fore in the low-cost car designer's perspective, and are here embodied with most desirable simplicity and completeness.

The opposed cylinder motor is placed crosswise under the hood, fan fly-wheel in front, two forward speeds and a reverse planetary gear at rear of the crank box, between the motor, supported by cylinder head lugs on the chassis frame sides and the substantial aluminum casting chassis frame cross-girt which carries the rear end of the planetary speed change shaft to

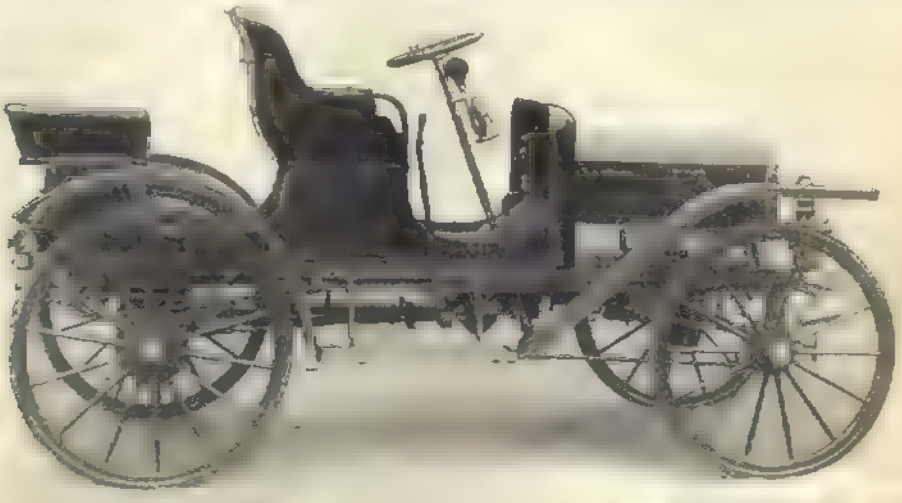


Fig. 1. Cole solid tire automobile, for four passengers. Wheel base 87 inches. Solid rubber tires, front 36x1¾ inches; rear 38x1¾ inches. Motor two cylinders, 4¼x4 inches opposed. 4-cycle, air-cooled. Planetary speed change two forward speeds and a reverse, with universal joint shaft and bevel and balance gears to divided rear axles. Bevel seat and rumble seat, each for two passengers, seats for four passengers total. Weight of chassis only 1200 lbs., weight of runabout, complete as here shown, about 1350 lbs. Price $750.00, including magneto, spark coil, three oil lamps, mats, horn and tools.

In response to these requirements of the Cole Carriage Company a new chassis has been produced, wheel base 87 inches, solid tires, 36x1¾ ins. front and 38x1¾ ins. rear, air-cooled, 4-cycle, 2-cylinder opposed motor in front, cylinders 4¼x4 ins., planetary speed change next to the motor with bevel gear to the divided rear axle, with a runabout body having a rumble seat for two passengers, giving a total seating capacity for four passengers.

The weight of the Cole solid tire chassis is about 1,200 lbs.; weight of runabout complete, about 1,350 lbs. Price, including magneto, spark coil, 3 oil lamps, mats, horn and tool equipment, 2-passenger runabout, $700.00; double rumble seat, 4-passenger, $725.00, and a detachable tonneau model, seating 5 passengers, $750.00.

which a 17-tooth pinion, 8 d. p. is fixed, over its co-acting 43-tooth gear on the short universal fork shaft carried in bearings in the aluminum casting directly below the speed shaft pinion. This gives a 2 9-17 to 1 speed reduction from the change gear shaft to the universal joint shaft when the transmission is direct.

The bevel pinion is 15 teeth, 6 d. p., 1¾ ins. face, co-acting bevel gear, 48 teeth, giving 3 1-5 to 1 reduction from the propeller shaft to the wheels, making a total reduction from the crank-shaft to the driving wheels, straight ahead course, of 8 1-10 to 1, high speed.

The tubular rear axle, bevel gear housing and universal shaft tubular steel sleeve form an integral assembly with solid rod triangular bracing from the forward end

of the sleeve to the axle casing as shown in Fig. 2.

The springs are four full elliptics and the chassis frame is 1½x2x3-16 angle steel, 1½-in. member horizontal on top, 2-in. member vertical inside.

The special design muffler is placed crosswise in the rear, two exhaust pipes, one from each cylinder, being carried nearly the whole length of the chassis frame to connect with the muffler ends. These two long exhaust pipes, 1⅜ ins. diameter, keep the exhaust from one cylinder from interfering with that from the other cylinder and also so effectively cool the exhaust before it reaches the muffler that the back pressure maximum does not exceed 6 ounces to the square inch. No muffler cut out is fitted.

The ignition is by a low-tension magneto, two-coil box on the inside of the front board and jump spark plugs.

ing on his feet, and all adjustments can be made from above except one, the low-speed brake-band adjustment, which can be reached by stooping at the right side of the car, so that it is not needful to lie down under the car for any purpose whatever, save possibly in case of accident.

The wheels have 36x1¾ solid tires in front and 38x1¾ solid tires in rear, and are very substantial, having 1¾ ins. spoke width. The front wheels are on adjustable 3-point ball bearings, ½ in. diameter outside and ⅝ diameter inside. The rear wheels are fixed to the ends of the divided live axles by taper, key and nut.

THE FRONT AND REAR AXLES.

These illustrations show a square section, which will be changed in regular production to I-section, steel drop forging. The yoke opening is 4 ins., with ⅝ straight steel stub-axle pins, stub axle greatest diameter 1 5-16 ins. The I-section front

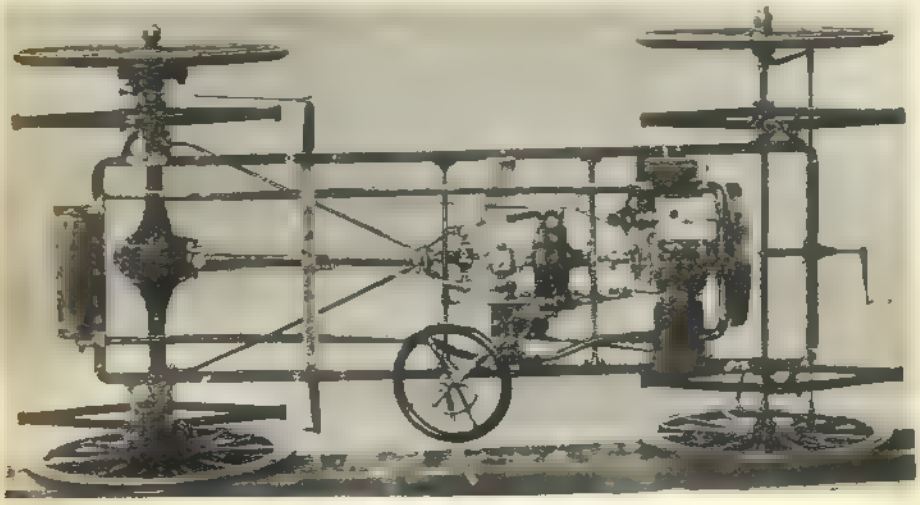


Fig. 2. Cole solid tire automobile, chassis plan, showing general arrangement of parts and rear axle and propeller shaft [illegible] triangular construction

The 4-lead mechanical oiler, special construction, is placed over the left-hand cylinder with the magneto in the middle at the right.

The motor cylinders are offset 1 3-32 ins. on the gray iron casting crank box, and the cam shaft, having 2 cams only, is placed in a separate gray iron casing over the crank box and carries the commutator on its inside end. The bronze stand which supports the magneto and oiler is placed on top of the cam shaft box. All the bolts and screws for holding the magneto and oiler bracket and the cam shaft box are readily accessible, and the entire motor assembly can be disassembled readily from above.

This is also true of the entire chassis. Everything can be assembled and disassembled from above by a workman stand-

axle greatest depth is 2¼ ins. wide, web and ribs all ⅝ thick, extremely substantial to carry the large diameter, solid tire wheels safely. The stub axle steering arm is 7 ins. radius. The parallel rod is ⅝ dia. solid steel rod, fork opening 1 in. with 7-16 pins, one fork integral with the rod, the other fork screwed onto the enlarged ¾ dia. rod end with check nut retention.

The rear axle casing is 2⅜ outside dia., 7-32 wall thickness. The bevel gear malleable casting housing is divided vertically fore and aft in the middle, halves faced and rabbitted together, held together with 8 bolts, 7-16 dia., bolt bodies sliding fit, nuts retained with split pins. The bevel gear casing is 3-16 thick and the casing hubs are bored to take the steel tube axle casings, retained by riveting and brazing.

The balance gear is eight spur pinions, 10 d. p. The live axles are on Hyatt roller bearings at both ends with four ball-thrust bearings.

BRAKES AND SPRINGS

The brake drums, integral with the wheel hubs, are 10 ins. out dia., 9½ ins. inside dia. x 1¾ ins. face. The internal expanding malleable iron brake shoes are jointed in the middle, are cam rocker expanded, and are finished to take camel's hair belting friction faces. No exterior brake bands are fitted, the planetary transmission being used as an emergency brake.

The springs are all full elliptics, all 36 ins. long x 1⅜ wide. All have five leaves on top, each 5-16 thick, with four leaves ¼ inch thick in all the bottom spring halves. The spring halves are all bent to the same radius, but under load the lower, lighter, under member deflects to nearly straight, and so transfers wheel shock through the more yielding form to the heavier and more curved upper spring member. This spring form and construction was reached by reasoning, is radically different from any other spring form ever observed by the writer, and is certainly very easy riding.

The rear springs are revolubly perched on the rear axle. The front axle position is maintained by the front springs only. The rear axle position is maintained by a globe-joint and horizontally jointed fork to the propeller shaft sleeve, fork ends pivoted to lugs integral with the aluminum cross-girt. The springs are fixed to malleable casting brackets hot riveted to the chassis frame.

THE CHASSIS FRAME

This is angle steel 40 carbon open hearth, 1½x2x3-16 in., narrow member horizontal on top, wide member vertical inside, all in one piece with four right-angle bends, joined in the middle of the front member, the starting crank hanger foot forming the fish plate. The finished chassis frame outside dimensions are 31 ins. wide x 100 ins. long. On top of this flat angle steel frame an oak frame, 1½ ins. wide x 2 ins. thick is laid, fixed in place by 8 bolts, ⅜ dia., 4 bolts on a side, heads on top of body sills, and nuts under the chassis frame top member, split washer retained. This wooden reinforcement gives the angle steel chassis frame the required stiffness and elasticity. The chassis frame steel cross members and spring bracket are secured by hot riveting. The motor is held by bolting head brackets, integral with cylinders, to the frame sides, and the aluminum reduction bracket is also fixed by bolting to the frame sides.

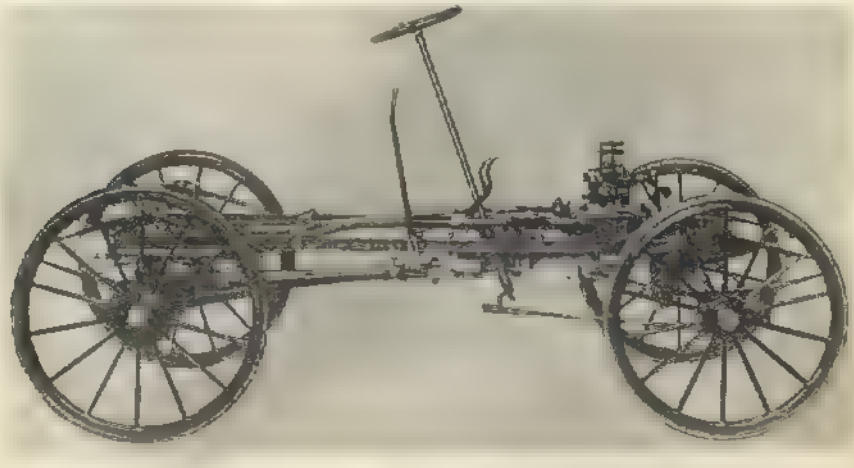


Fig. 3. The Cole solid tire automobile chassis, right side elevation, showing oiler and magneto on top of motor in front, the two pedals, the outside hand lever and the muffler in the rear, with the full elliptic springs front and rear

THE MOTOR.

The cylinders, 4¼x4, are circumferentially ribbed on the body, with lengthwise ribs on the combustion chamber and valve chamber. The valves are all the same diameter, 1 11 16 outside, over 1 7-16 dia. ports, intake valves ¼ lift, exhaust valves 5-16 lift. The valve cams impinge ⅞ rollers on ⅝ pins, cam rollers and pins all hardened and ground. The push rods are phosphor bronze, 1 in. dia., position retained by 3-16 dia. cross pins driven in the push rod or slider bodies and traveling in machined slots in the gray iron cam shaft box. The 2 to 1 gears are standard bronze for the gear engaging a soft steel pinion, 12 d. p., 11-16 face. The valve lift is regulated by a hard screw tapped into the bronze slides, retained with a hard check nut.

The pistons have three snap rings. The hardened and ground piston pins, 1 inch dia., ½ in. hole, and is retained by a pointed set screw in one piston hub.

The steel drop forging connecting rods are 8 ins., C. to C., bronze bush forced into piston pin ends of the rods. Crank wrist

ends of rods have caps with flat joining, held on 5 liners, total liner thickness 1-16, by ⅜ steel studs with A. L. A. M. castellated nuts and split pins. The crank ends of the rods are lined with Parsons white bronze, in half boxes, retained with counter-sunk head screws.

The journals are 1 11-16 dia. x 3⅝ long, wrists 1½x1 9-16 ins. long, rear end coupled to the planetary gear shaft. The fan-fly wheel is on a taper at front end, with 2 Woodruff keys, and flange nut retention, nut position retained by a ¼-in. dia. headless screw through nut flange. The reduction gears from the speed change shaft run in phosphor bronze half boxes, seated in the aluminum reduction bracket.

Fig. 4. Front of Cole solid tire automobile chassis showing the front axle and fan flywheel. The front axle shown in these illustrations is a rectangular steel bar [illegible] chassis. The [illegible] will be an I section steel drop forging all in one piece, no welds. The fan flywheel is 13½ inches outside diameter by 2¼ inches face, weight 70 pounds, 6 arms, greatest fan arm angle 26 degrees. Greatest fan arm width about 4 inches, least fan arm width about 2 1-16 inches. The rim section is 2¼ inches wide by 1¼ inches thick.

The fuel tank is a rectangular galvanized iron construction, 10 gallons capacity, about 200 miles range, carried under the driver's seat, cushion removed for tank-filling. The carburetor is a special construction, details not specified because of pending patent application.

CONTROL.

The steering is by a quick screw, double thread, integral with the steering wheel shaft, which engages a vertically sliding nut internally; thread pitch one turn in 1 6-10 ins. Turning the hand wheel raises or lowers this quick pitch nut by its internal thread, and this nut is threaded on the outside with a sextuple thread 8 1-3 ins. pitch, which engages a fixed exterior nut which cause the steering shaft screw nut to revolve one way when lifted by the revolving of the hand wheel in one direction and the other way when the hand wheel motion is reversed. The rotary movement of this nut is transferred to a globe end steering arm, 6 ins. radius, with the usual steering rod to the right-hand stub axle steering arm. The hand wheel makes 1½ full turns to the full sweep of the wheels. The a[illegible] of this rotation can be varied by var[illegible] the pitch of the sextuple thread screw on the outside of the hand wheel steering shaft screw nut. While this is in no sense a differential screw steering action, it is yet very powerful, making easy steering, and is, of course, locked in all positions. The construction is simple and cheap, and all the parts are strong.

The spark and throttle control are by a central shaft and enclosing sleeve, both concentric with the steering post, positions ratchet retained on top of the hand wheel.

There are only two pedals on the footboard. That at the right when pushed forward applies the internal expanding rear-hub-drum brake shoes through a long evener, traveling in slots formed by caps applied to the tops of the chassis frame sides.

The left pedal when pushed forward effects the reverse only. There is no interlinking of either pedal or lever actions.

There is one outside hand lever at the

driver's right which stands in the middle of its travel when both of the forward drives are disengaged. Pushing the hand lever forward engages the multiple disk clutch in the forward head of the planetary speed change. Pulling the lever backward from extreme forward position first releases the high speed drive and next at extreme rear position applies the low speed brake band to the planetary speed change.

ON THE ROAD

Thursday, October 8, at 11 A. M., a Cole solid tire automobile, R. H. Rosenberg, driver, Hugh Dolnar, observer, left the Cole Carriage Factory, West New York St., Indianapolis, and was driven to Michigan Road to make the Michigan hill climb. Indianapolis is level, and has only two hills at all difficult; then across, east, to Noblesville Pike, where a second hill, rough, crooked road, much more difficult than Michigan hill, was climbed. From the Noblesville Pike the car was driven south across the canal to Illinois Street. At the head of Illinois Street, about eight miles out, we overtook a 5-passenger touring car, carrying two passengers only and being driven fast. The Cole solid tire automobile followed the car closely at about 20 or 25 miles, and passed it as soon as the Illinois Street pavement was reached.

This route covered about 22 miles, and was made in about 80 minutes, including the time of a 15-minute stop on the flat between the bridge and Michigan Hill, waiting for heavy teams to make the climb with numerous halts for rest, so that the car could have a free run up. No attempt at speed was made, and the advertised best pace of this Cole car is only 20 miles, which is now regarded as about the safety limit for high wheels and solid tires. This route includes all varieties of road surface, from excellent brick and asphalt pavement to the worst of dirt road surface, and with the two hills, a straight, stiff grade on Michigan and a very crooked and rough gravel and dirt road up the Noblesville Pike climb, gave sufficient variety to show all the paces of the solid tire car.

SOLID TIRE RIDING.

On brick and asphalt the solid tires rode smoothly, but with a certain hardness of feeling as compared with the pneumatic tire. The motor is well balanced and gives only a very slight vibration when the car is standing still. The movement of the Cole solid tire car is not at all fatiguing, and solid tires give much less bounce and tossing of passengers than pneumatics, so that it was not needful to "ride the car" in crossing trolley tracks, nor in passing through road depressions of considerable depth, all of which was a distinct surprise to the observer. Even when following the touring car at over 20 miles pace on a road which had plenty of rough surface there was no tossing of passengers at all, the Cole car body showing much less rise and fall than the body of the car before it.

Taken altogether, this short run on the Cole solid tire large wheels was decidedly instructive, and compelled a radical change in the observer's preconceived estimate of solid tire road performance.

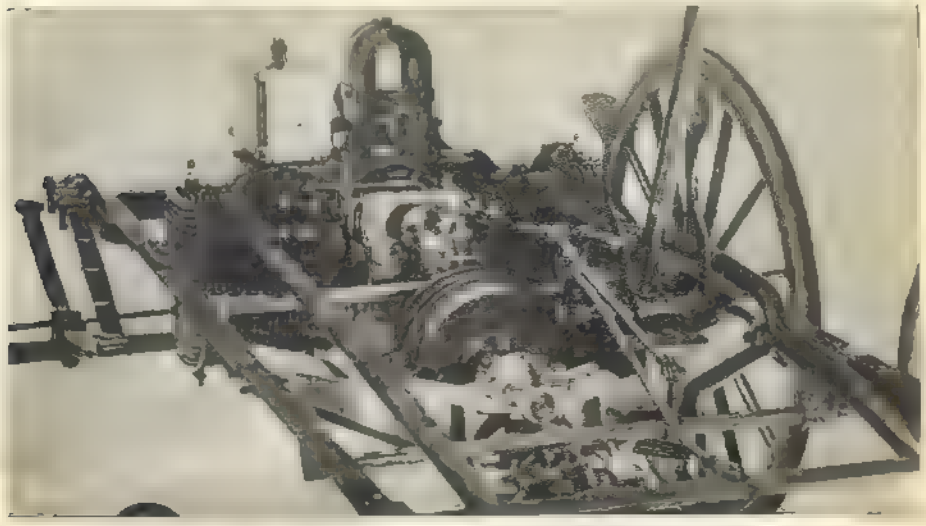


Fig. 5. The Cole solid tire automobile, left side oblique view of front part of chassis, showing the aluminum reduction cross member, front wheel perch and frame apron, bracket, oiler and magneto placing, pedal and brake evener and support. The evener is a solid steel bar, 2 inches by 5/16 inch in middle, tapered edgewise from near middle to ends.

1909 MITCHELL CARS

The Mitchell Motor Car Company, of Racine, Wis., although placing several new cars on the market for 1909, are producing a $1,500 model which might be termed the "leader." This company has for several years been exploiting medium-priced automobiles, which were serviceable, well built and contained many of the features of the highest grade and most luxuriously appointed machines. In fact the average price for Mitchell cars for several years has not been much more than $1,500. For this reason the announcement for 1909 that this company has placed on the market a serviceable touring car at $1,500 carries with it the understanding that the car is not in any sense an experiment, but a machine following largely the construction and practices embodied in other Mitchell productions.

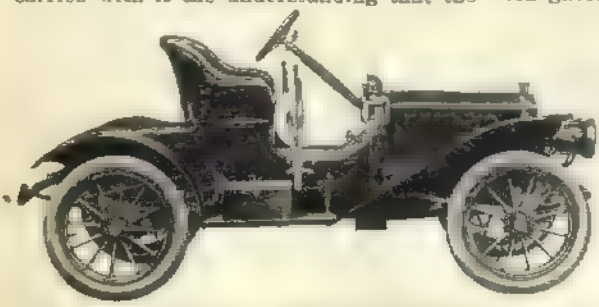


Fig. 1. Mitchell Model J, 4-cylinder 4 x 4 motor 20 H. P., selective change speed gear, 3 speeds and reverse. Wheel base 92 inches. Tires 32 x 3½. Jump spark ignition. Magneto $100 extra. Price $1000.

All the Mitchell cars are built in the company's own factory at Racine and are not assembled. The several models are as follows: Model G is a continuation of the roadster which has found favor in the past, and a limited number of these will be built for 1909. Model J, 20 H. P., 4-cylinder runabout, $1,000. Model K, the new touring car, 28-30 H. P. and Model L, the 4-cylinder, 35-40 H. P. touring car, liberal wheel base and seating capacity, at $2,000.

The equipment on all the cars includes adjustable metal brackets, oil light brackets, rear light bracket and complete set of tools.

The three new models embody all the experience gained during the past eight years, during which time it is claimed $10,000,000 worth of cars have been built and sold. The Model J runabout follows very closely the general details of the Model G, which became so well-known last year. The motor has four cylinders 4x4, rated as 20 H. P. The car is fitted with a sliding gear transmission which gives three speeds forward and one reverse and is direct on the high speed, with no gears in mesh. The gears are controlled by the usual side lever and two sets of brakes are provided on the rear wheels, the hand brake being an internal expanding band, while the foot brake is of the external contracting type. The usual spark lever is on the steering wheel, and the throttle can be controlled either by hand or foot. The wheel base is 92 inches, the wheels being 32 inches in diameter of artillery type, made of pressed steel and are fitted with 3½ inch tires and Midgeley universal rims. Half-elliptical springs are used at front and rear, the front being 40 inches in length and the rear 44 inches. The drive is by shaft and bevel gears. The seating capacity is three. This car carries a 16-gallon gasoline tank, is capable of a speed of 45 miles per hour and weighs 1,650 pounds, with an equipment consisting of the lamp brackets and tools and a single rumble seat. The price is $1,250.

MODEL J RUNABOUT.

The runabout model for 1909 has practically the same chassis as the Model G, but the body has seating capacity for only two, although a single rumble seat can be had at an extra charge of $60. The motor is the same and ignition is by jump spark, although the machine is so designed that a magneto can be attatched if desired, the charge for the magneto being $100 extra. Steel battery and tool boxes finished with baked enamel are provided on the running boards. This car sells for $1,000.

THE NEW $1500 MODEL.

This new car is a five-passenger machine, having a 4-cylinder, 30 H. P. engine of 4¼ inches bore by 4½ inches stroke. The body, as will be seen from the accompanying illustration, is very large and roomy, there being nothing cramped or skimpy in the appearance. The makers assert that it embodies at least $300 automobile value not found in other cars of its class, as it has a $150 Splitdorf magneto in addition to the regular ignition system, and is fitted with 30-inch wheels and 4-inch tires. The use of 4-inch tires it is believed by the company will result in such easy riding qualities and tire economy, as to give the

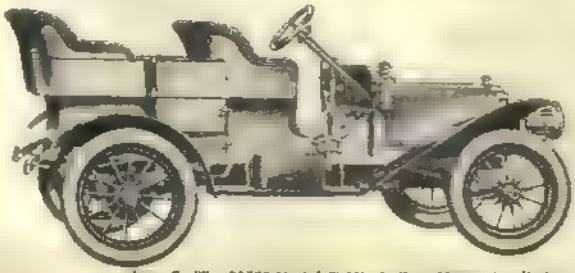


Fig. 2. The $1500 Model K Mitchell. Motor 4 cylinders 4½ x 4½. 28 to 30 H. P. [illegible] gear, double ignition and splitdorf magneto [illegible] tires 32 x 4 inches wheel base [illegible] 92 inches running boards [illegible] of bodies as [illegible] runabout, [illegible] surrey or single rumble seat. Price $1500 [illegible] Color, French gray with red running gear and upholstery.

car a distinct popularity, justifying what might be otherwise considered, too much liberality.

THE MODEL K MOTOR.

The motor of the new car follows very closely previous Mitchell construction, and is made entirely in the Racine factory. The

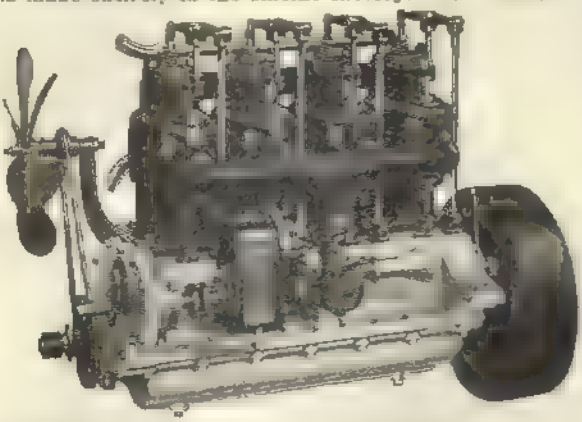


Fig. 3. Model K Motor. Cylinders 4¾ x 4¾, 28-30 H. P., cast separately. Valves in head and side operated by one cam shaft. Gears enclosed.

cylinders are cast separately, so that each cylinder is individually accessible. The crank case is the usual horizontally divided aluminum construction, with integral supporting arms, and encloses the gears at the forward end. Following the usual Mitchell construction one valve is placed in the head, and the other in the chamber at the side of the cylinder, both being operated, however, from a single cam shaft. The double ignition system is one of the special features. The magneto commutators, coil batteries, etc., are supplied without extra charge. Nickel alloy and vanadium steels are used largely in the construction in such places as the crankshaft, the transmission shafts and gears and the rear live axles. The springs are also of vanadium steel. Some aluminum castings are employed, and are strengthened with bronze wherever necessary.

The change speed gears are of selective type, which previous to this year has been found only on high priced cars. The shafts

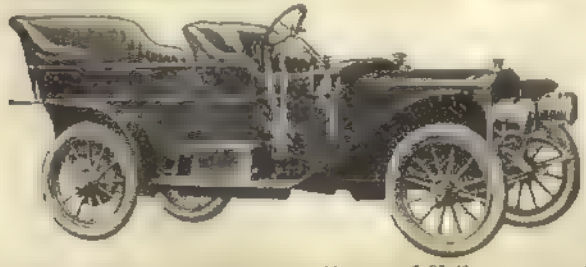


Fig. 5. Model L, 7 passenger Mitchell. Motor 4¾ x 5, 35-40 H. P., 34 x 4 inch tires, 117-inch wheel base, double ignition, platform rear springs, floating rear axle. Price $2000.00.

of this transmission are mounted on Hyatt roller bearings. These bearings in each case can be quickly removed by unscrewing caps which cover their ends. The lay shaft is arranged beside the main shaft, the case being divided in a horizontal plane. The wheel base is 105 inches and the wheels are 32 inches fitted with 4-inch tires, as previously stated. The steering wheel is a black ebonite finish instead of being stained. The standard body has a detachable tonneau. Several options, as follows, are given: A runabout deck, a surrey or a single rumble seat. An extra charge, of course, being made if more than one body is desired. These bodies are wholly of metal—which has been found to be a durable construction. The standard color is French gray, with red running gear and red upholstering.

The drive is by universal joints and shaft, to the ordinary type of bevel gear rear axle.

THE SEVEN PASSENGER CAR.

The large Model L, or 7 passenger touring car, is a machine of large proportions, and finished in a style which is only found in the best grade of cars. It has 117 inches wheel base and 34-inch wheels with 4-inch tires 4½-inch tires being furnished at slight extra cost. The 4-cylinder motor has a bore of 4¾ inches and a stroke of 5, being rated as 35-40 H. P. This car is also fitted with double ignition. The rear

Fig. 4. Change speed gears of Model K. Selective type, there being two movable gears. Hyatt roller bearings are used.

springs are of the platform type, and the drive is by shaft to a floating type rear axle.

James Cunningham, Son & Co., of Rochester, N. Y., who have been engaged in the manufacture of carriage bodies for a number of years, have installed equipment in their factory for the production of automobile bodies for the trade. This concern has one of the largest body factories devoted exclusively to heavy work and it is especially equipped for building limousines, landaulets, tax cabs and similar bodies. They contemplate marketing next year motor ambulances casket wagons and taxicabs

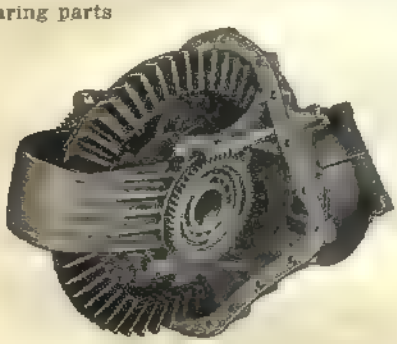
DETAIL FEATURES OF THE TIMKEN PRESSED STEEL AXLE

Some additional descriptive data and cuts illustrating features of the new Timken pressed steel rear axle have been furnished us since we described the axle briefly in our November number. This axle is the latest product of the Timken Roller Bearing Axle Co., of Canton, Ohio. The general features, such as smoothness

Top view of the Gear Carrier of the Timken Pressed Steel Axle.

of outline, fewness of parts, etc., were explained and illustrated in the November article and we are now illustrating the brake construction and the differential gear carrier.

The differential gear carrier is a compact unit that can be removed bodily from the axle case or housing without taking down the axle or disturbing brake equipment, springs, hubs or bearings. The carrier is anchored in the front of the case with combination slotted nuts and cotter pins. Grease cups are provided wherever needed for the perfect lubrication of all bearing parts

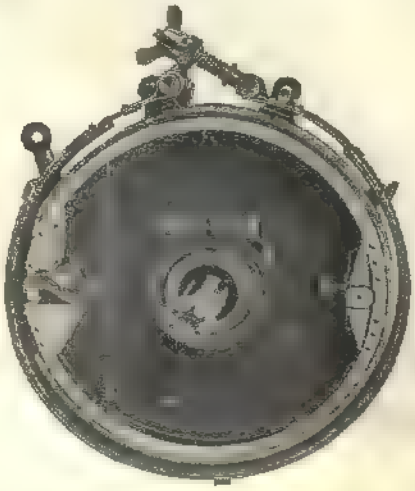


Side view of the Gear Carrier on the Timken Pressed Steel Axle.

A very important feature and probably the greatest improvement in this unit is that all bearings can be adjusted from the outside by means of keyed and cotter pin locking worm screws.

The new brakes are extra large, measuring 14 inches in diameter by 21 inches in width. The construction has been greatly simplified and the number of parts reduced to the minimum. On the internal brakes the levers are placed inside the chassis frame to prevent interference and complication. The band which is of pressed steel and fills the entire inside diameter of the drum, is operated by a cam opposite the anchor point which forces the band against the entire inside friction surface equally. The band is released in all directions positively and floats free of drum surface.

All joints are provided with oilers. There are no inside parts to adjust. The brake box and friction surfaces are kept perfectly dry and free from lubrication by double felt washers between the shaft and axle casing. The external brake shows even more marked improvements than the internal. The wrap up of the band is complete whether the direction is forward or backward. This is obtained by double anchor and fulcrum points which change with the direction in which the wheel rotates.



Brake on the Timken Pressed Steel Axle.

The band floats with the wheel a short distance until the anchor point is reached when the slightest pressure on the lever pull aided by the attraction of the wheel applies retarding friction that can be varied in any degree from the merest touch to a dead lock. The only part to adjust is a large brass wing nut which is located so it can be easily reached and adjusted by hand. The rod end of the lever is located so that the slight floating of the band does not affect the pull on the friction surfaces.

The new torque bar is Y-shaped, the forks being anchored in the cupped ends of a vertical oscilating bar seated in the check of the differential carrier.

This form is adopted to give greater strength than a straight single bar while the oscilating seat permits sufficient flexibility to take up all strains caused by the rocking of the car. Spring seat bases are swiveled on the axle so as to prevent

shocks from the chassis being communicated to the body. Strut rod bosses when required are placed on separate brackets immediately underneath the frame to give a straight thrust from axle to body. The bosses are extra large and fitted with special hardened steel bearing bushings.

The axle complete with differential gear carrier, brakes, torque bar and spring seats will be made in both clutch and fixed hub types for cars weighing up to 3,000 pounds empty and of 45 H. P. or less.

"CLIMAX" FRICTION TRANSMISSION

This transmission is made in two sizes, No. 12, transmitting up to 4 H. P. and No. 18, transmitting up to 8 H. P. It is the product of Climax Electric Works, of New Salem, Mass., who experimented for two years before placing it on the market. This concern also manufactures a line of small powered, air cooled motors. When a transmission is ordered with an engine they fit a special balance wheel faced with alloy if desired.

The driving disc is composed of two parts, an iron supporting frame bored 1⅛ in. to go on the engine shaft or an extension of it, and an alloy disc facing, securely screwed to its face by eight screws around the rim. This facing when worn can be turned and be worn again and then both sides refaced in a lathe, giving at least four new surfaces before having to be replaced.

The friction wheel is of cast iron, bored one inch and key seated to slide on the splined shaft. This carries a straw fibre facing on its rim, which makes a contact with the alloy surface of the driving disc. When this is in contact near the outer edge it gives the highest speed, for one will revolve as fast as the other. Moving it in towards the center gives less speed and if moved past the center it will revolve the other way, giving the reverse.

The jack shaft is splined as far as the friction wheel slides and is carried in hinged bearings under each side of the frame. When the engine is running idle the foot pedal is released and a spring holds the jack shaft back so the fibre does not touch the alloy disc. This same motion pushes the rear axle back. As this motion is only about an eighth of an inch it is readily absorbed by the spring and keeps the chains tight at all times. Each bearing is provided with a connection for a radius rod. A sprocket may be used on both ends as illustrated but only one is needed. Plain bronze bearings are regularly fitted or ball bearings will be supplied, when ordered for $1.00 extra.

Price of No. 12 transmission as shown, is $18; of No. 18, $21.

Climax Friction Transmission.

AN OPPORTUNITY IN IGNITION BATTERIES

S. Breakstone, 900 Fisher Bldg., Chicago, Ill., is offering for sale a special lot of ignition batteries of a well known make, which regularly list at $27.50, at the exceptionally low price of $7.50 each. The reason for this special reduction of price is the fact that an automobile manufacturer, on account of having cut down his output for the present year because of financial conditions, and having contracted for a number of these batteries is forced to dispose of the unused portion of the lot. The battery is a 6 volt, 60 ampere storage battery comprising three cells in hard rubber jars contained in a highly polished oak case, measuring 8¾ inches high, 5⅛ inches wide and 8½ inches long. The cover is held on by brass hinges and can be opened when charging by loosening brass hooks. The electrolyte used in the cells is composed of a solution of chemically pure sulphuric acid and distilled water. This battery it is said will run the car from 1000 to 2000 miles on a single charge. This is a particularly good opportunity not only for owners of cars but for dealers in second-hand machines.

VISES.

No. 4B.

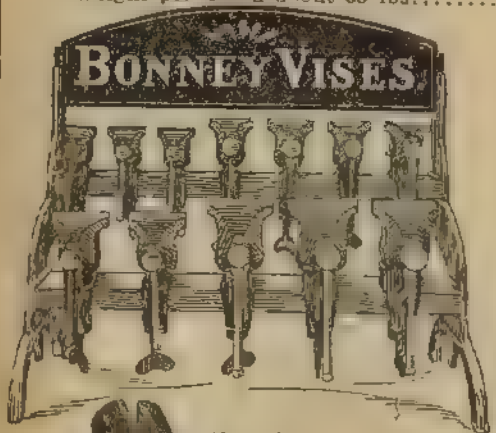
BONNEY'S.

With Anvil; Clamp to Bench; Cast Iron, Japanned, with Polished Slide, Edges, Jaws and Anvil Face; Polished Steel Screw and Sliding Lever Handle.

No. 3B.

	Per Dozen
No. 1B—With Plain Clamp Screw, Plain Jaws; WIDTH OF JAWS 1½ INCHES, Jaws Open 2¼ inches Length Closed 4¾ inches; Weight per dozen about 17 lbs	$3.75
No. 2B—With Plain Clamp Screw, Plain Jaws; WIDTH OF JAWS 2 INCHES Jaws Open 2½ inches; Length, Closed, 5¾ inches; Weight per dozen about 35 lbs	6.50
No. 3B—WITH BUTTON End Clamp Screw, WIDTH OF JAWS 2¼ INCHES Jaws Open 3¼ inches Length Closed 6 inches Weight per dozen about 38 lbs	$8.50
No. 4B—WITH LARGE BUTTON End Clamp Screw, Plain Jaws; WIDTH OF JAWS 2¾ INCHES Jaws Open 3¼ inches Length, Closed 6¼ inches, Weight per dozen about 50 lbs	16.50

Packed Loose.



No BNS.

No. BNS—BONNEY VISES, as described above, in Sets, Mounted on Stand 16¼ inches High, 10 inches Wide, 18 inches Long; Stand has Japanned Cast Iron Sides or Leg Pieces, Cast Iron Top Plate and Two Hardwood Cross Pieces or Shelves; Set consists of: 3 only No. 1B, 4 only No. 2B, 2 only No. 3B, 2 only 4B and 1 only No.7B; Weight per set complete about 42 lbs. ..... $12.00 Per Set

No. 7B Vises are the same size and description as No. 4B, except with Steel Faced Jaws and Swivel Jaw Attachment.

One Set in a Wood Box

HAND VISES.

No. 140.

STANDARD

Black Enameled Malleable Iron Hinged Jaws; Checkered Face; Polished Head; Adjusted by Steel Bolt, with Wing Nut. Steel Spring between Jaws.

No. 144.

No. 140—WITHOUT HANDLE.

Length, inches	3½	4
Width of Jaws, inches	1 1/16	1¼
Weight per dozen about, lbs	3	3
Per dozen	$6.00	6.50

No. 144—WITH 4¼ INCH BLACK ENAMELED HARDWOOD HANDLE.

Length, inches	3½	4
Width of Jaws, inches	1 1/16	1¼
Weight per dozen about, lbs	6	6
Per dozen	$8.00	8.50

One-half Dozen in a Cardboard Box.

ALFORD'S.

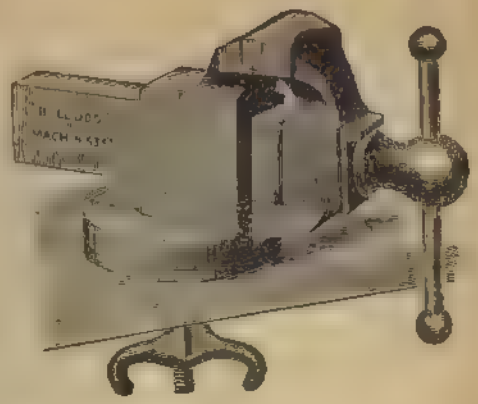
Forged Steel Nickel Plated Head, Jaws, Double Acting Reverse Threaded Screw, and Cross Bar, Hollow Polished Cocobolo Handle 4⅜ inches Long, with Screw Head; Containing two Awls two Chisels, one Reamer and one Screw Driver Bit, all Polished Steel 1¾ inches Long, also one Washer Cutter Head with Adjustable Steel Points Handle is Interchangeable with a Nickel Plated Steel Bit Shank, both Screwing into Head at Bottom or either side as desired.

Per Dozen

No. 1—WITH TOOLS; 1¼ inch Checkered and Hardened Jaws Length over all 7 inches; Weight per dozen about 12 lbs. $42.00

VISES.

MACHINISTS'



‡BULL DOG

Cast Iron Body Japanned; Polished Slide and Steel Faced Parallel Jaws; Polished Steel Screw and Sliding Lever Handle; Well Finished.

STATIONARY BOTTOM.

Nos.	‡50BD	‡51BD	‡52BD	‡53BD
Width of Jaws, inches	3¼	3⅝	4⅛	4⅝
Jaws Open, inches	4	5½	6	7
Ex. Length Closed, in.	13½	15	17¼	18½
Weight each about, lbs.	22	28	42	52
Each	$6.00	7.00	8.50	10.00

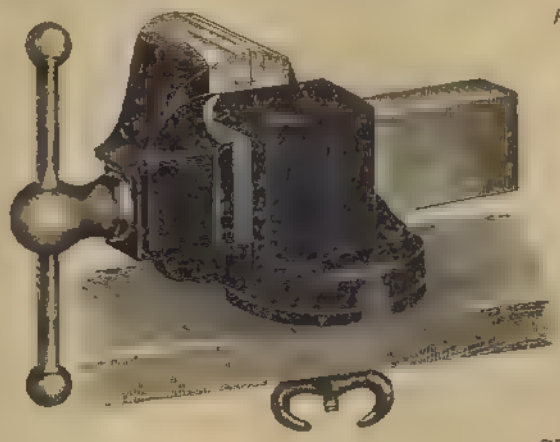
Nos.	‡54BD	‡55BD	‡56BD	‡57BD
Width of Jaws, inches	5	5½	6	7
Jaws Open, inches	8	9	10	12
Ex. Length Closed, in.	20¼	23½	25¾	30½
Weight each about, lbs.	72	100	135	210
Each	$13.00	18.50	25.00	37.50

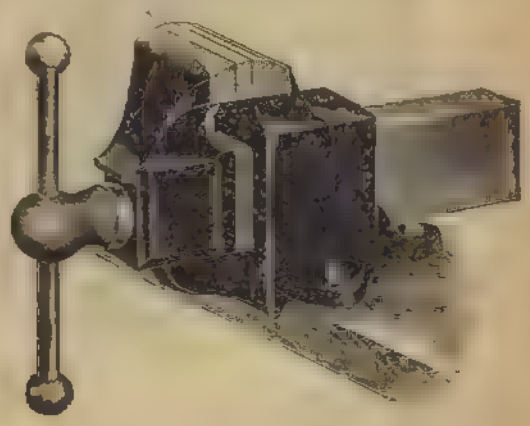
SWIVEL BOTTOM.

Nos	‡90BD	‡91BD	‡92BD	‡93BD
Width of Jaws, inches	3¼	3⅝	4⅛	4⅝
Jaws Open, inches	4	5½	6	7
Ex. Length Closed, in.	13½	15	17¼	18½
Weight each about, lbs.	28	38	52	64
Each	$7.50	8.75	10.50	12.50

Nos.	‡94BD	‡95BD	‡96BD	‡97BD
Width of Jaws, inches	5	5½	6	7
Jaws Open, inches	8	9	10	12
Ex. Length Closed, in.	20¼	23½	25¾	30½
Weight each about, lbs.	85	116	155	235
Each	$16.00	22.00	30.00	42.50

Packed Loose.





STANDARD.

Cast Iron Japanned Body; Polished Slide and Steel Faced Parallel Jaws; Polished Steel Screw and Sliding Lever Handle.

Swivel Bottom.

Nos.	214	216	218	220	222	224	‡226
Width Jaws, in.	3½	4	4½	5	5½	6	6½
Jaws open, in.	4	5½	6	7	8	9	10
Extreme length, closed, in.	13½	15	17	18	20	24	28
Wgt. about, lbs.	28	36	52	64	85	115	155
Each	$7.50	8.75	10.50	12.50	16.00	22.00	30.00

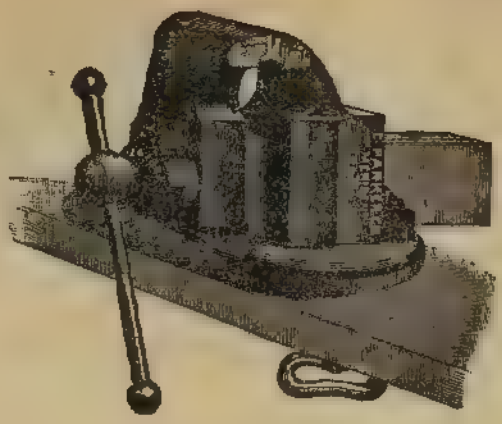
Stationary Bottom.

Nos.	213	215	217	219	221	223	‡225
Width Jaws, in.	3½	4	4½	5	5½	6	6½
Jaws open, in.	4	5½	6	7	8	9	10
Extreme length, closed, in.	13½	15	17	18	20	24	28
Wgt. about, lbs.	22	28	42	52	72	100	135
Each	$6.00	7.00	8.50	10.00	13.00	18.50	25.00

Packed Loose.

‡Goods marked thus (‡) are not carried in stock and can only be furnished by shipment direct from factory.

VISES.



PARKER'S, MACHINISTS' BENCH.

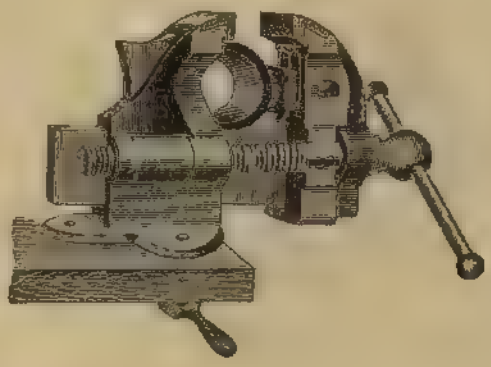
Parallel Steel Faced Jaws; Cast Iron Body, Japanned; with Polished Slide and Jaws; Polished Steel Sliding Lever Handle.

SWIVEL BASE.

Nos.	2000	2100	2200	2300
Width of Jaws, inches	2¾	3⅛	3⅝	4⅛
Jaws open, inches	2¾	4	4¼	5¼
Extreme length closed, inches	8½	13	15	16½
Weight each about, lbs	8½	23	35	48
Each	$4.00	6.25	8.00	10.00

STATIONARY BASE.

Nos.	0000	100	200
Width of Jaws, inches	3¼	3⅝	4⅛
Jaws open, inches	4	4¼	5¼
Extreme length closed, inches	13½	15	17
Weight each about, lbs	23	31½	41½
Each	$5 50	6.50	8.50



COMBINATION PIPE.

PARKER'S PATTERN

Combination Pipe, with Checkered Steel Faced Parallel Jaws and Toothed Double Pipe Jaws, WITH SWIVEL BASE.

Nos.	87	88
Width of Jaws, inches	3⅝	4⅛
Jaws open, inches	4½	6½
Holds pipe, inches	⅛ to 2	⅛ to 3
Extreme length closed, inches	15	17½
Weight each about, lbs	41	59
Each	$16 00	20 00

HOLDFAST.

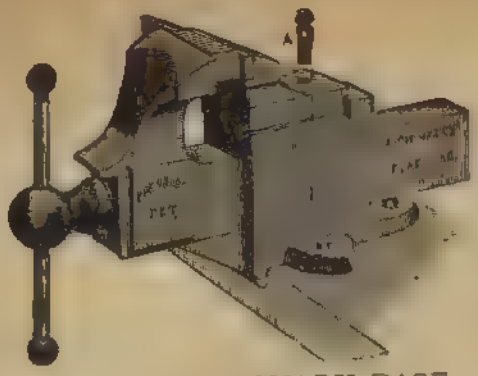
Combination Pipe, with Checkered Steel Faced Parallel Jaws and Supplementary Toothed Pipe Jaws, with STATIONARY BASE.

Nos.	870	880
Width of Jaws, inches	3¼	3½
Jaws open, inches	3½	4
Holds pipe, inches	⅛ to 2	⅛ to 3
Extreme length closed, inches	13	15½
Weight each about, lbs	28	52
Each	$8 50	11.00

The Steel Faced Jaws of these Vises are Milled and Fitted to the Jaws, and are Renewable at a Trifling Cost.

Packed Loose.

VISES.



PRENTISS' MACHINISTS' BENCH.

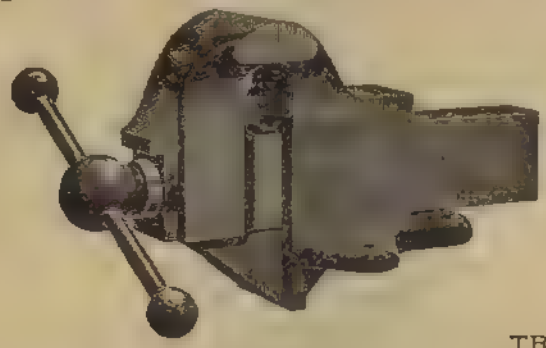
Cast Iron Body, Japanned, with Polished Slide and Steel Faced Jaws; Polished Steel Screw and Sliding Lever Handle; Rear Jaw is Self-Adjusting, but may be made Stationary by inserting Pin, marked "A"

STATIONARY BASE.

Nos.	1	2	2½	3	4	5
Width of Jaws, in.	2⅝	3½	4	4½	5¼	6
Jaws open, inches	3¼	4¾	5¼	6	8	9
Extreme length, closed, inches	12½	15	17½	19	24	28
Wgt. each about, lbs.	13½	28	41	54	96	146
Each	$5.50	7.00	9.00	10.50	17.00	24.00

SWIVEL BASE.

Nos.	18	19	19½	20	21	22
Width of Jaws, in.	2⅝	3½	4	4½	5¼	6
Jaws open, inches	3½	4¾	5¼	6	8	9
Extreme length, closed, inches	12½	15	17½	19	24	28
Wgt. each about, lbs	17	32	46	65	109	168
Each	$6.75	8.50	10.50	12.50	19.00	27.00



TRENTON.

Cast Iron, Japanned, with Polished Slide and Parallel Jaws; Polished Steel Screw and Sliding Lever Handle; Stationary Base.

MACHINISTS' BENCH.

Nos.	T62	T63	T64	T65
Width of Jaws, inches	3¼	3⅝	4⅛	4⅝
Jaws open, inches	4½	5	5⅝	6½
Extreme length, closed, inches	14½	16	17½	19½
Weight each about, lbs.	32	40	53	68
Each	$6.00	7.00	8.50	10.00

Each

No. T50—COACHMAKERS' (or Woodworkers'); Jaws 4 inches Wide; Open 9 inches, Extreme Length Closed, 18½ inches. Weight each about 48 lbs. $9.00

GIPSY.

Each

No. 66—GIPSY, LIGHT BENCH. Cast Iron Painted Black with Polished Checkered Steel Faced Parallel Jaws 3½ inches Wide, Open 4 inches; Polished Steel Screw and Sliding Lever Handle, Sliding Swivel Bolt and Washer for attaching to Bench; Extreme Length, Closed, 11½ inches. Weight each about 14 lbs. $2.50

MASSEY'S WOOD WORKERS.

Japanned, Cast Iron Body, Heavy Sliding Plate Jaw and 9 inch Lever Handle; Fastens underneath Bench by four Screws or Bolts, with Top of Jaws Flush with Bench

Each

No. 17—MASSEY, Quick Acting; Base 8¾ inches Wide, 15 inches Long. Jaws 9 inches Wide; Open 12 inches. Extreme Length Closed 21 inches; Weight each about 49 lbs. $6.00

Packed Loose.

VISES.

Vise Complete.

SOLID BOX; BLACKSMITHS'.

Forged Steel Body, Jaws and Hinge Plate, Japanned Finish; Malleable Iron Bench Plate Malleable Box, Japanned; Polished Steel Screw and Sliding Lever Handle; Steel Spring between Jaws.

Nos.	35	40	45	50	55	60
Weight each, lbs.	35	40	45	50	55	60
Width of Jaws, inches	3¾	4	4¼	4½	4¾	5
Jaws Open, inches	3¾	4	4¼	4½	4¾	5
Extreme Height, inches	40	41	41	41	41	41
Each	$10.00	10 50	11.00	11.50	12.00	13.00

Nos.	65	70	75	80	100
Weight each, lbs.	65	70	75	80	100
Width of Jaws, inches	5	5¼	5¼	5½	6
Jaws Open, inches	5	5¼	5¼	5½	6
Extreme Height, inches	41	41	41	41	41
Each	$14.00	15.00	16.00	17.50	22.00

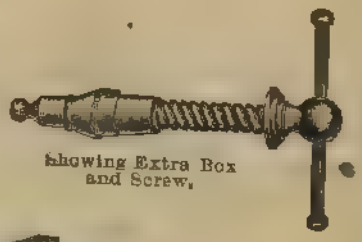
Packed Loose.

VISE BOXES AND SCREWS.

Extra Malleable Boxes, with Steel Screw and Sliding Lever handle for Solid Box Vises.

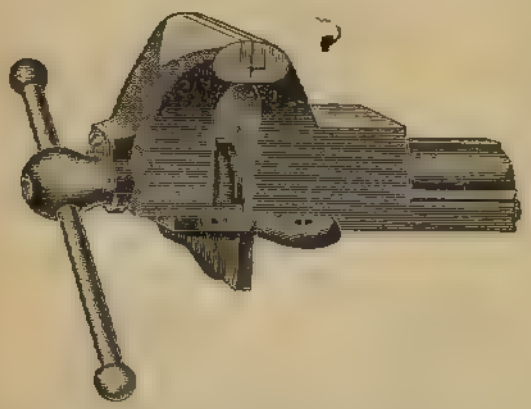
Nos.	1	1½	2	3	4
To Fit Vises, Nos.	35 & 40	45 to 55	60 to 75	80 to 95	100 to 125
Length over all, inches	11½	12½	13½	14½	15½
Weight each about, lbs.	10	12	14	16	18
Each	$3 50	4.00	4.00	4.50	7.00

Packed Loose.



Showing Extra Box and Screw.

VISES.

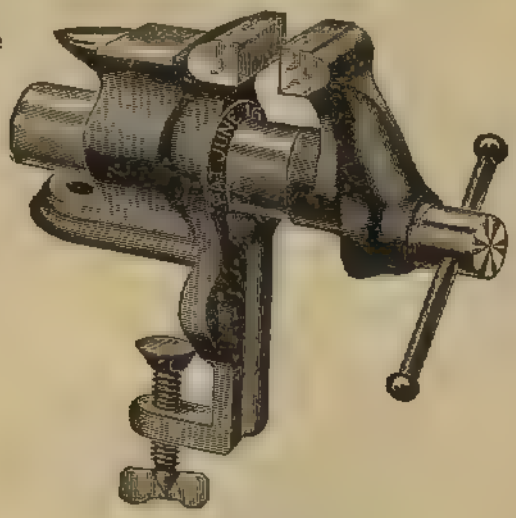


FARMERS' OVAL SLIDE.

To Screw to Bench; Cast Iron, Japanned Finish, with Polished Steel Faced Jaws, Polished Steel Screw and Sliding Lever Handle.

Nos.	F30	F31	F33	F34
Width of Jaws, inches	2½	3	3½	4
Jaws open, inches	3¾	4	4	4
Extreme length, closed, inches	11½	13	15	16
Weight each about, lbs.	8½	13	22	28
Each	$2.50	3.00	4.75	6.50

Packed Loose.



PHOENIX.

WITH ANVIL; To Clamp or Screw to Bench as desired; Cast Iron, Japanned, with Polished Slide, Jaws and Anvil Face; Polished Steel Screw and Sliding Lever Handle.

Nos.	11	12	13	14	15
Width of Jaws, inches	1½	1¾	2	2½	2½
Jaws open, inches	1¾	2	2¼	2¾	2¾
Extreme lgth. closed, in.	4½	5½	6¾	8½	8½
Wgt. per doz. about, lbs.	18	30	54	114	118
Per dozen	$7.00	13.00	20.00	32.00	40.00

NOTE—Nos. 11 and 12 have Plain Cast Jaws; Nos. 13 and 14 Hardened Cast Jaws; No. 15 Hardened Steel Jaws.

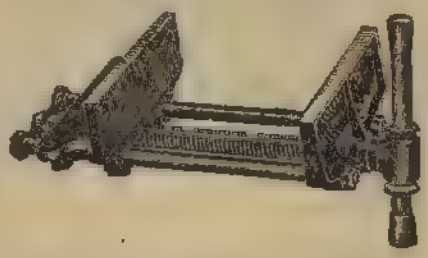
One Dozen in a Bundle.

‡VISES.

WOOD WORKERS'.

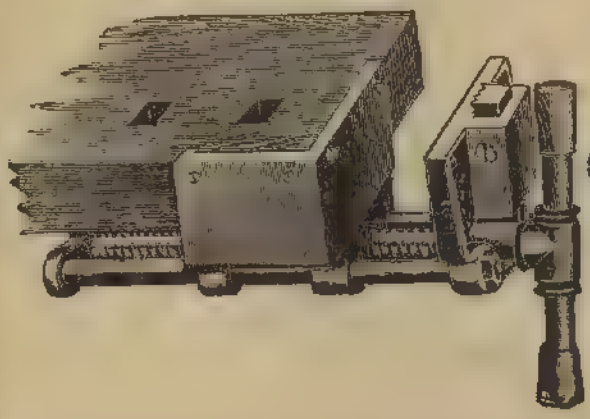
TOLES' RAPID ACTING.

To Set Flush with Bench; Two Polished Parallel Steel Slide Bars with Polished Steel Slotted Screw working between; Patent Self-adjusting Bronze Clutch Nut; Japanned Malleable Parallel Jaws, Rear Piece and Handle Socket; Polished Hickory Sliding Handle with Malleable Cap at one End; Jaws have Carefully Planed Faces.



REGULAR; WIDE JAWS 4x10 INCHES.

Nos.	20/12	20/14	20/16	20/18	20/20	20/22	20/24
Jaws Open, inches	12	14	16	18	20	22	24
Weight each about, lbs.	36	37	38	39	40	41	42
Each	$6.50	7.00	7.50	8.00	8.50	9.00	9.50



TAIL VISE; NARROW JAWS 3½x6 INCHES. *With Side Extension to Rear Jaw; For use on Corner of Bench; Brass Dog 1 inch Square in Front Jaw.*

Nos.	35/6	35/8	35/10	35/12
Jaws Open, inches	6	8	10	12
Weight each about, lbs.	30	31	32	33
Each	$6.00	6.50	7.00	7.50

REGULAR; WIDE JAWS 4x10 INCHES. *With Brass Bench Stop 1 inch Square in Back Jaw; and Brass Dog 1 inch Square in Front Jaw.*

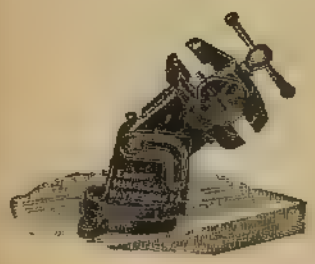
Nos.	40/12	40/14	40/16	40/18
Jaws Open, inches	12	14	16	18
Weight each about, lbs.	39	40	41	42
Each	$7.50	8.00	8.50	9.00

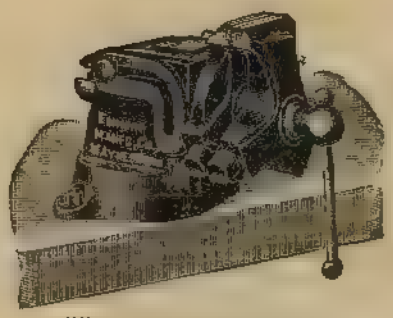
Nos.	40/20	40/22	40/24
Jaws Open, inches	20	22	24
Weight each about, lbs.	43	44	45
Each	$9.50	10.00	10.50

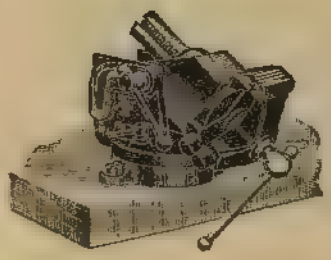
About Six in a Barrel.

‡Goods marked thus (‡) are not carried in stock and can only be furnished by shipment direct from factory.

‡VISES.







UNIVERSAL TOOLMAKERS'.

Cast Iron Body and Slide Frame, Japanned; Triple Ground Jaws, Revolving on Slide to any Desired Position; Slide and Jaws work in Slide Frame Pivoted into Grooves to tilt at any Angle; Polished Slide; Polished Steel Screw and Sliding Lever Handle; With One Pair of Steel faced Checkered Jaws, One Pair Plain Jaws, One Pair Round Jaws (for holding rings), One Pair Removable Self-adjusting Taper Jaws; Swivel Base.

Nos.	3A	4A	10A
Width of Jaws, inches	3	4	6
Jaws Open, inches	6	8	9
Weight each about, lbs.	45	85	230
Each	$20.00	25.00	45.00

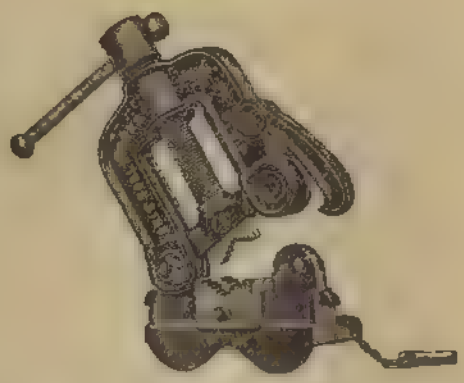
SWIVEL BASE.

Nos.	22/S	23/S	24/S	25/S	26/S	27/S
Style of Jaws	Parallel	Self-Adjusting	Parallel	Parallel	Parallel	Parallel
Width of Jaws, inches	2¾	2¾	3½	4½	5½	6½
Jaws Open, inches	3	3	6	6½	9	11
Weight each about, lbs.	14	14	42	65	120	175
Each	$6.50	7.00	10.50	14.50	26.00	39.00

Packed Loose.

‡Goods marked thus (‡) are not carried in stock and can only be furnished by shipment direct from factory.

PIPE VISES.



Cast Iron Frame and Base, Japanned Finish; Polished Steel Sliding Handle and Screw; Hardened Jaws with Milled Teeth; Two Lower Jaws Stationary and One Upper Jaw Moveable; Holes in Base to Screw to Bench. With hinged joint on one side to open Vise; Cast iron latch and pin to insert in hole of joint to hold frame rigid when closed.

Each

No. 1E—Holds Pipe ⅛ to 2 inches; Height over all 9⅞ inches; Length of Sliding Handle 6 inches; Size of Base 4¼x5⅜ inches; Weight each about 13½ lbs. $8.00

No. 3E—Holds Pipe ⅛ to 2½ inches; Height over all [illegible] inches; Length of Sliding Handle 8¾ inches; Size of Base [illegible] inches; Weight each about 11¾ lbs. ..... [illegible]

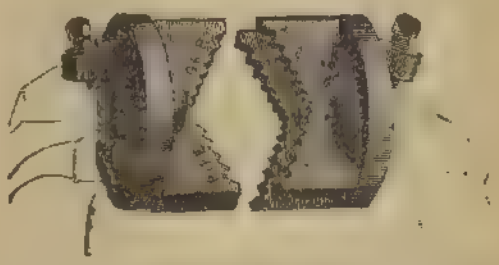
No. 4E—Holds Pipe ¼ to 3½ inches; Height over all 11 inches; Length of Sliding Handle 9¾ inches; Size of Base 5¾x8 inches; Weight each about 16½ lbs. $14.00

No. 12—Holds Pipe ½ to 4½ inches; Height over all 16 inches; Length of Sliding Handle 11½ inches; Size of Base 6½x9 inches; Weight each about 22 lbs. ..... [illegible]

Each

No. 5C—With Steel Link Chain; Polished Steel Screw and Cast Iron Adjusting Handle at Bottom; Chain Fits in Groove on Side of Frame, Adjusting to the different size Pipe; Holds Pipe ⅛ to 2½ inches; Height over all 7 inches; Length of Adjusting Handle 6½ inches; Size of Base 7½x5½ inches; Weight each about 11 lbs. $16.00

PIPE GRIPS.



PEERLESS SWIVEL PIPE GRIPS.

Cast Iron, Japanned Finish, with Polished Edges; Diameter 4 inches; Double Toothed Jaw on One Side; Single Toothed Jaw on the other; Both Jaws Hardened; Can be attached by the Steel Set Screws to any Plain Jaw Vise, converting it into a Pipe Vise.

Per Pair

No. 1—Swivel for 3 to 4½ inch Vise; Grips ¾ to 2½ inch Pipe; Weight per pair about 7 lbs. .. $2.50

No. 2—Swivel for 4¾ to 6 inch Vise; Grips ¼ to 5 inch Pipe; Weight per pair about 8 lbs. 2.75

Packed Loose.

PIPE CUTTERS.

BARNES' IMPROVED, THREE WHEEL.

Polished and Hardened Cast Steel Shank and Frame; Japanned Cast Iron Handle; Cutters Forged from Best Jessop Tool Steel, Tempered and Oil Finished.

	Each
No. B1 Cuts Pipe from ⅛ to 1 inch. Length over all, closed, 13 inches. Weight each about 3 lbs	$4.50
No. B2 Cuts Pipe from ½ to 2 inches; Length over all closed, 16 inches, Weight each about 5 lbs.	6.00
No. B3—Cuts Pipe from ½ to 3 inches; Length over all, closed, 21 inches Weight each about 5½ lbs	$10.00
No. B4—Cuts Pipe from 2½ to 4 inches, Length over all, closed, 25 inches; Weight each about 14 lbs.	20.00
No. B5—Cuts Pipe from 4 to 6 inches; Length over all, closed, 30 inches; Weight, each, about 22 lbs	30.00

EXTRA CUTTER WHEELS FOR BARNES' PIPE CUTTERS.

Nos.	B1	B2	B3	B4
Diameter, inches	1	1 3/16	1 7/16	1⅝
Weight each about, lbs	⅛	⅛	¼	¼
Each	$0 25	30	.40	.50

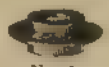
PIPE CUTTERS.

STANWOOD'S, ONE WHEEL.

Polished and Hardened Cast Steel Shank and Frame; Japanned Steel Cutter Block; Japanned Cast Iron Handle; Cutter Forged from Tool Steel, Tempered and Oil Finished.

	Each
No. 1—Cuts Pipe from ⅛ to 1 inch; Length over all, closed, 17 inches; Weight each about 3 lbs.	$1.50
No. 2—Cuts Pipe from ¾ to 2 inches; Length over all, closed, 21 inches; Weight each about 8½ lbs.	2.25
No. 3—Cuts Pipe from 2 to 3 inches; Length over all, closed, 24½ inches; Weight each about 11 lbs.	7.00

EXTRA PARTS FOR STANWOOD'S PIPE CUTTERS.



No. 1.

No. 1B.

EXTRA CUTTER WHEELS.

Nos.	1	2	3
Diameter, inches	1	1¼	1⅝
Weight each about, lbs	⅛	⅛	¼
Each	$0 12	.18	25

EXTRA CUTTER BLOCKS AND WHEELS.

No	1B
Length, inches	2¼
Width, inches	1¼
Weight each about, lbs	½
Each	$0.40

PIPE TONGS.

BROWN'S, Adjustable.

Forged Tool Steel, Natural Finish; Tempered Jaws; Adjusted by Heavy Wrought Steel Thumb Screws.

Nos.	1	1½	2	3	4
For Pipe, Size, inches	⅛ to ¾	⅜ to 1	⅛ to 1¼	1 to 2	1½ to 3
Length over all, inches	13½	17	20	25	37
Weight each about, lbs.	2½	4	6	10	21
Each	$1.30	1.65	2.00	3.00	6.00

Packed Loose.

TRADE MARK: "SURE GRIP." REGISTERED.

CHAIN PIPE WRENCHES.

VULCAN

Forged from Tool Steel, Natural Finish; Detachable Head, Flat Link Steel Chain; Milled Teeth on Both Sides of Head

Size.	Capacity, Size Pipe.	Length Over All.	Length, Flat Link Chain.	Average Breaking Strain, Flat Link Chain.	Weight each about.	Each.
No. 10V	⅛ to ¾ in.	13¾ in.	9½ in.	3000 lbs.	1¾ lbs.	$ 2.50
No. 11V	⅛ to 1½ in.	20 in.	13½ in.	5500 lbs.	4¾ lbs.	3.50
No. 12V	¼ to 2½ in.	27 in.	17½ in.	9500 lbs.	8¾ lbs.	5.00
No. 13V	¾ to 4 in.	37 in.	22½ in.	11000 lbs.	16 lbs.	7.00
‡No. 13½V	1 to 6 in.	44½ in.	31 in.	13000 lbs.	21 lbs.	8.00
‡No. 14V	1½ to 8 in.	50½ in.	39 in.	16000 lbs.	29 lbs.	11.00
‡No. 15V	2 to 12 in.	64½ in.	54½ in.	20000 lbs.	49 lbs.	18.00
‡No. 16V	4 to 18 in.	87 in.	74½ in.	40000 lbs.	130 lbs.	40.00

‡EXTRA FLAT LINK CHAINS FOR VULCAN PIPE WRENCHES.

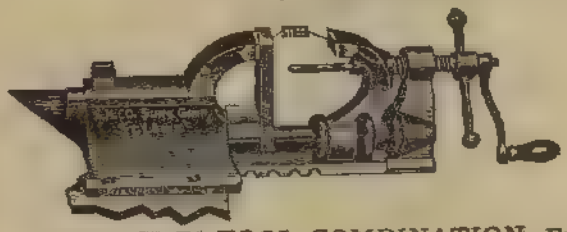
‡Nos	10V	11V	12V	13V	13½V	14V	15V	16V
Each	$0.75	1.00	1.50	2.50	3.25	4.00	6.00	13.00

‡EXTRA JAWS FOR VULCAN PIPE WRENCHES.

‡Nos	10V	11V	12V	13V	13½V	14V	15V	16V
Per Pair	$1.00	1.75	2.75	4.00	4.75	5.50	7.50	16.00

Packed Loose.

COMBINED ANVILS AND VISES.



SURE GRIP* TOOL COMBINATION. Each

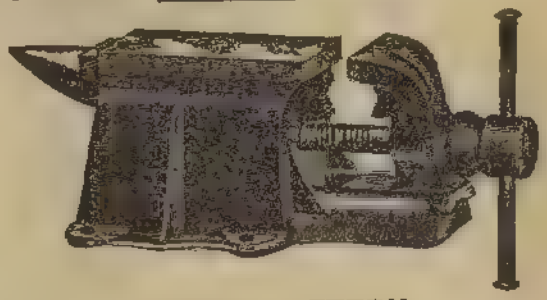
No. S—SURE GRIP*; COMBINED VISE, ANVIL AND DRILL, with Hardy; Height 8½ inches; Width of Jaws 3½ inches; Jaws Open, 5 inches; Depth of Throat 5½ inches; Body of Tool is painted Dark Maroon; Jaws are faced with Steel and Polished; Top of Anvil is Case Hardened and Polished; Anvil is provided with good Steel Cut-off, or Hardy; Drill will take any common sized Round Shank Drill Bits; Drills half-inch Holes readily and is capable of drilling both larger and smaller holes; can be converted from Vise to Drill instantly by merely inserting the Drill Bit; no Screws or Bolts to take out; Draw Bar is made of Steel "T" Rail; Drill Bits not furnished with the above; Sliding Steel Lever Handle; Cast Iron Crank, 6½ inches Long, with Wood Handle; Weight each about 60 lbs. $7.50

One in a Wood Box.

Each

No. 45A—DIAMOND COMBINED ANVIL AND VISE, with 4 inch Steel Faced Adjustable Jaws; Opens 12 inches; ¾ inch Steel Screw; Length 17 inches; Height 7 inches; Sliding Steel Lever Handle; Weight each about 46 lbs. $4.50

One in a Wood Box.

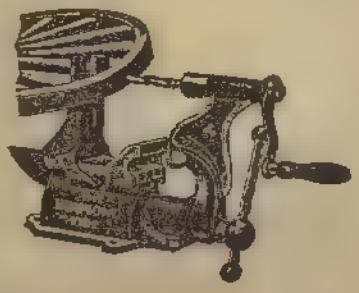


AUSTIN PATTERN.

Hardened Face and Jaws; Sliding Steel Lever Handle.

Each

No. 3A—AUSTIN PATTERN; Anvil and Vise; 3 inch, with Parallel and Pipe Jaws; Jaws open 4½ inches; Weight each about 24 lbs. $4 00



Each

No. D47—DIAMOND COMBINED ANVIL AND VISE, WITH DRILL ATTACHMENT; Vise Part same as No. 45A, with 4 inch Steel Faced Adjustable Jaws; Drill Attachment is easily removed when not in use; will take 5/16 inch Round Shank Bit; Length 23½ inches; Height 14½ inches; Sliding Steel Lever Handle; Weight each, complete, about 61 lbs.. $7.50

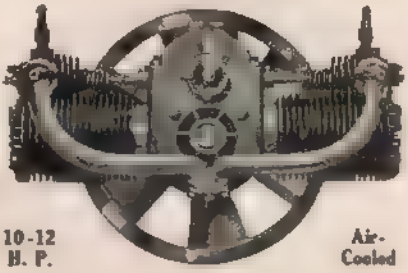
‡Goods marked thus (‡) are not carried in stock and can only be furnished by shipment direct from factory.

AUTO FRONTS AND TOPS

Col. Sprague's New 1908 Common Sense Goods for sensible people. A gentlemen's outfit One in one—that's all We kill the bugs We don't catch 'em and hold 'em They are fool proof No set screws No plunge bolts No other rattle traps or monkey shines Simplicity, Durability and Elegance. All the working parts made of phosphor bronze and can't break Ask for our catalogue

THE SPRAGUE UMBRELLA CO., Norwalk, O.

De Tamble Buggy-Type *Engine*



10-12 H. P. **Air-Cooled**

A motor which assures the advance of the high-wheel automobile, because it is the only one which fully meets all the requirements of this type. It is compact, perfectly balanced and thoroughly high-grade, warranted to keep cool and deliver the rated horse-power. Weight, including fly-wheel, but 180 pounds. Interesting prices in quantities; prompt deliveries.

Do you want to develop greater power, speed, flexibility and economy in your engine? Try a SPEED CARBURETOR.

We guarantee it to accomplish these results, or refund the money.

We also build the famous CARRICO Air-cooled ENGINE, 4-cylinder, 4x4, 24 H. P. Write for catalog.

Speed Changing Pulley Co., 754 Washington St., Indianapolis, Indiana

PACIFIC COAST DISTRIBUTORS: T. H. Morgan, 322 Mason Bldg., Los Angeles, California.

CANADIAN AGENCY: The Canadian Fairbanks Co., Ltd., 444 St. James St., Montreal, Canada.

More popular than ever

"SOOT-PROOF"

plugs have honestly maintained their popularity.

They give less trouble, last longer and are easier to obtain than any other make of plug on the market.

Sold at a Popular Price

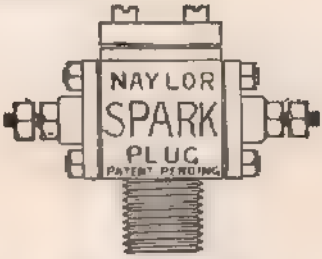
$1.00 TO FIT ALL MAKES OF CARS

None genuine without the name of C. A. MEZGER on the porcelain.

C. A. Mezger, Inc., Manufacturers
1759 BROADWAY, NEW YORK

National Sales Corporation, Factory Sales Managers
296 Broadway, New York

A Dozen Sparks :: *Not One*



Ignition and Mixture Troubles

CAN AT ONCE BE LOCATED BY THE USE OF THE

"Naylor" Spark Plug

WHY? Because you can see the spark and ignition of the mixture while the engine is running. Being entirely insulated from engine you save battery power.

PRICE, $2.50 EACH

NAYLOR & BINGHAM, 413 Commerce St., Philadelphia, Pa.

TRADE MARK
E. C. SIMMONS' KEEN KUTTER
REGISTERED.

HANDLED HAMMERS.

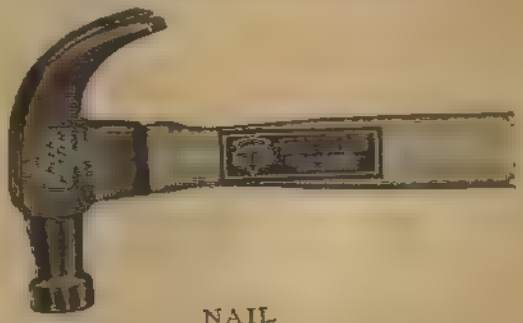
KEEN KUTTER BLUE BRAND.

Drop Forged from One Solid Piece of Highest Grade Crucible Steel; Hardened Face; Tempered Claws; Thoroughly Tested, Full Blued Finish, HANDLE FASTENED WITH OUR GRELLNER PATENT WEDGE.

NAIL.

Adze Eye, Plain Face, with Nonpareil Grade Select White Hickory Handle.

Nos.	B1	B1½	B2	B3
Weight without Handle, ozs.	20	18	13	7
Length over all, inches..	14	13	13	12
Weight per dozen about, lbs.	22	18	15	10
Per dozen	$13.00	12.50	12.00	11.50



NAIL

Adze Eye, Bell Face, with Nonpareil Grade Select White Hickory Handle

Nos.	B11	B11½	B12	B13
Weight without Handle, ozs.	20	18	13	7
Length over all, inches..	14	13	13	12
Weight per dozen about, lbs.	22	18	15	10
Per dozen	$13.00	12.50	12.00	11.50

Our Beautiful Blue Brand Finish gives an Attractive Appearance not Obtainable in any other Make.

NAIL.

Adze Eye: Octagon Neck and Head, with Nonpareil Grade Select White Hickory Handle

Nos.	B01½	B02
Weight each without Handle about, ozs.	17	14
Length over all, inches	13	13
Weight per dozen about, lbs.	18	15
Per dozen	$14.50	13.00

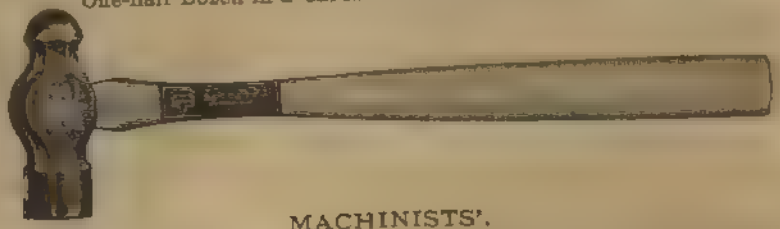
NAIL

Adze Eye: Octagon Neck and Head, with Selected Applewood Handle

No.	B111½
Weight each without Handle ozs	17
Length over all, inches	13
Weight per dozen about, lbs	18
Per dozen	$15.00

One-twelfth Dozen in a Carton. Protects the Finish and Makes a Convenient Retailers' Package

One-half Dozen in a Cardboard Box; Six Dozen in a Case.



MACHINISTS'.

Octagon Pattern, Hardened Ball Pein, with Nonpareil Grade Select White Hickory Handle

Nos.	BM3/0	BM2/0	BM0	BM1	BM2	BM3	BM4
Weight each without Handle, ozs.	8	12	16	20	24	28	32
Length over all, inches	12½	13½	14½	15	16	16½	17
Weight per dozen about, lbs.	10½	14	16	21	24	28	30
Per dozen	$15.00	16.00	17.00	18.00	19.00	20.00	21.00

One third Dozen in a Cardboard Box; Six Dozen in a Case.

TRADE MARK: E. C. SIMMONS' *KEEN KUTTER*, REGISTERED.

HANDLED HAMMERS.

KEEN KUTTER*—NICKEL PLATED.

Drop Forged from one Solid Piece of Highest Grade Crucible Steel, Hardened Face, Tempered Claws; Thoroughly Tested; Bastard Cut Handle, FASTENED WITH OUR GRELLNER PATENT WEDGE.

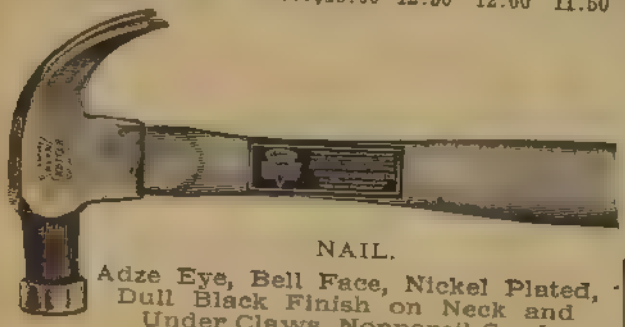
On all *KEEN KUTTER** Hammers we insist upon Severe and Carefully Measured Tests, which demonstrate and enable us to Guarantee the proper hardness of the Striking Faces; the proper temper and slitting of the Claws and the proper Hardening of the Edges of the Claws, fitting them to grip and hold a nail firmly. They are automatically tempered, producing even heats, and the temper is drawn by a thermometer, insuring absolute uniformity.

NAIL.
Adze Eye, Plain Face; Full Nickel Plated, with Nonpareil Grade White Hickory Handle.

Nos.	K1	K1½	K2	K3
Weight without Handle, ozs.	20	16	13	7
Length over all, inches	14	13	13	12
Weight per dozen about, lbs.	22	18	15	10
Per dozen	$13.00	12.50	12.00	11.50

NAIL.
Adze Eye, Bell Face, Full Nickel Plated, with Nonpareil Grade White Hickory Handle.

Nos.	K11	K11½	K12	K13
Weight without Handle, ozs.	20	16	13	7
Length over all, inches	14	13	13	12
Weight per dozen about, lbs	22	18	15	10
Per dozen	$13.00	12.50	12.00	11.50



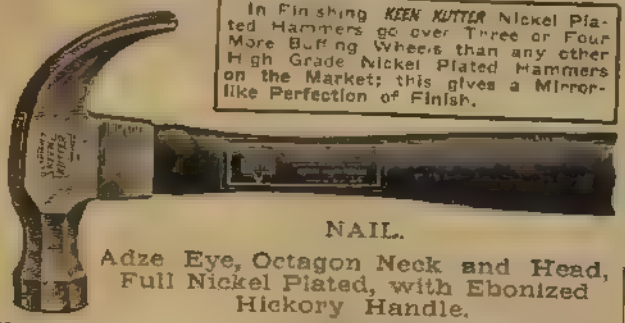
NAIL.
Adze Eye, Bell Face, Nickel Plated, Dull Black Finish on Neck and Under Claws, Nonpareil Grade White Hickory Handle

Nos.	K611	K611½	K612	K613
Weight without Handle, ozs.	20	16	13	7
Length over all, inches	14	13	13	12
Weight per dozen about, lbs.	22	18	15	10
Per dozen	$12.00	11.50	11.00	10.50

NAIL (OR BOX).
Adze Eye, Checkered Bell Face, Full Nickel Plated; with Nonpareil Grade White Hickory Handle

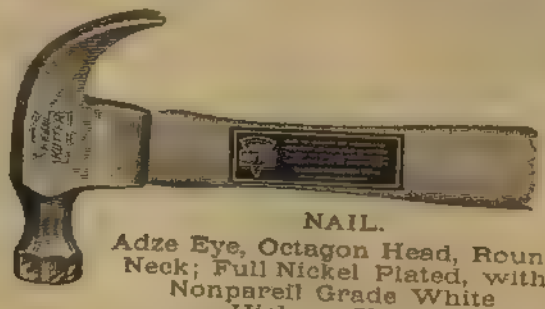
Nos.	KC11½	KC12
Weight without Handle, ozs.	16	13
Length over all, inches	13	13
Weight per dozen about, lbs.	18	15
Per dozen	$13.00	12.50

In Finishing *KEEN KUTTER* Nickel Plated Hammers go over Three or Four More Buffing Wheels than any other High Grade Nickel Plated Hammers on the Market; this gives a Mirror-like Perfection of Finish.



NAIL.
Adze Eye, Octagon Neck and Head, Full Nickel Plated, with Ebonized Hickory Handle.

Nos.	K511	K511½	K512	K513
Wgt. without Handle, ozs.	21	17	14	8
Length over all, inches	14	13	13	12
Wgt. per dozen about, lbs.	22	18	15	10
Per dozen	$15.50	15.00	14.50	14.00



NAIL.
Adze Eye, Octagon Head, Round Neck; Full Nickel Plated, with Nonpareil Grade White Hickory Handle.

Nos.	K110	K110½	K112	K113
Wgt. without Handle, ozs.	21	17	14	8
Length over all, inches	14	13	13	12
Wgt. per dozen about, lbs.	22	18	15	10
Per dozen	$14.50	14.00	13.50	13.00

One in a Carton; Protects the Finish and makes a Convenient Retailers' Package.
One-half Dozen in a Cardboard Box; Six Dozen in a Case.

TRADE MARK
E. C. SIMMONS *KEEN KUTTER*.
REGISTERED

HANDLED HAMMERS.

***KEEN KUTTER**—NICKEL PLATED.**

Drop Forged from One Solid Piece of Highest Grade Crucible Steel; Hardened Face; Tempered Claws; Thoroughly Tested, Custard Cut Handle FASTENED WITH OUR GRELLNER PATENT WEDGE.

On all *KEEN KUTTER* Hammers we insist upon Severe and Carefully Measured Tests, which demonstrate and enable us to Guarantee the proper Hardness of the Striking Faces, the proper Temper and Spring of the Claws, and the proper Hardening of the Edges of the Claws, fitting them to grip and hold a Nail firmly. They are automatically tempered, producing even heats, and the temper is drawn by a thermometer, insuring absolute uniformity.

NAIL OR RIPPING

Adze Eye, Plain Face; Straight Claws, Full Nickel Plated, with Nonpareil Grade White Hickory Handle

No.	K301½
Weight without Handle, ozs.	16
Length over all, inches	13
Weight per dozen about, lbs.	18
Per dozen	$12.50

Adze Eye, Bell Face; Straight Claws, Full Nickel Plated, with Nonpareil Grade White Hickory Handle

No.	K311½
Weight without Handle, ozs.	16
Length over all, inches	13
Weight per dozen about, lbs.	18
Per dozen	$12.50

One in a Carton; Protects the Finish and Makes a Convenient Retailers' Package. One-half Dozen in a Cardboard Box; Six Dozen in a Case.

The Mark

E. C. SIMMONS
KEEN KUTTER
TRADE ST. LOUIS MARK
U.S.A.

—AND—

The Motto

"The Recollection of QUALITY Remains long after the PRICE is forgotten." E. C. Simmons

TRADE MARK REGISTERED

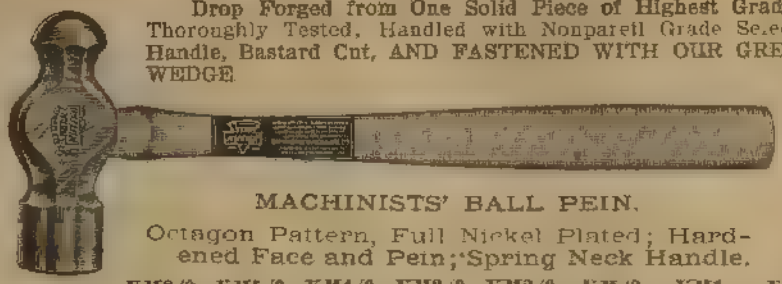
TRADE MARK: E. C. SIMMONS *KEEN KUTTER*, REGISTERED

HANDLED HAMMERS.

KEEN KUTTER*—NICKEL PLATED.

Drop Forged from One Solid Piece of Highest Grade Crucible Steel; Thoroughly Tested, Handled with Nonpareil Grade Select White Hickory Handle, Bastard Cut, AND FASTENED WITH OUR GRELLNER PATENT WEDGE.

KEEN KUTTER* HAMMERS.
The Handles are Select Nonpareil Grade White Hickory, the grain running with the long Diameter of the Handle, Giving the full Strength of the Wood against any Strain which can be Brought upon the Handle.



MACHINISTS' BALL PEIN.

Octagon Pattern, Full Nickel Plated; Hardened Face and Pein; Spring Neck Handle.

Nos.	KM6/0	KM5/0	KM4/0	KM3/0	KM2/0	KM/0	KM1	KM2	KM3	KM4
Weight without Handle, ozs.	3	4	6	8	12	16	20	24	28	32
Length over all, inches	10	11	12	12½	13½	14¼	15	16	16½	17
Weight per dozen about, lbs.	4	5	6¾	10½	14	16	21	24	28	30
Per dozen	$12.00	13.00	14.00	15.00	16.00	17.00	18.00	19.00	20.00	21.00

One-third Dozen in a Cardboard Box; Six Dozen in a Case.

KEEN KUTTER* HAMMERS.
Our *KEEN KUTTER* Trade Mark Design is Neatly Stamped into the Head of each Hammer, and a small and attractive Labe. is Fastened to the Handle, Embodying the talking points of the Grellner Wedge, and our Guarantee of Quality.

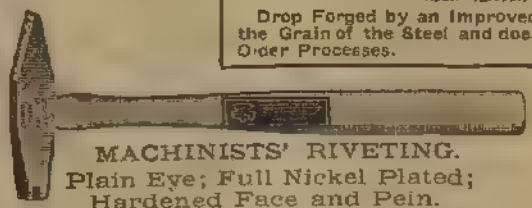
BLACKSMITHS' HAND.

Full Nickel Plated; Hardened Face and Pein.

Nos.	KB0	[illegible]	KB2	KB3	KB4
Weight without Handle, ozs.	26	32	42	48	56
Length over all, inches	15	15½	16	16½	17
Weight per dozen about, lbs.	23	29	36	43	48
Per dozen	$17.50	18.50	19.50	20.50	21.50

One-third Dozen in a Cardboard Box, Six Dozen in a Case.

KEEN KUTTER* HAMMERS.
Drop Forged by an Improved Process, which closely Hammers the Grain of the Steel and does not Crystalize it as some of the Older Processes.



MACHINISTS' RIVETING.

Plain Eye; Full Nickel Plated; Hardened Face and Pein.

Nos.	KR0	KR1	KR2	KR3	KR4	KR5
Weight without Handle, ozs.	4	7	9	12	15	18
Length over all, inches	11	11½	12	12½	13	13½
Weight per dozen about, lbs.	5	8	9½	12½	16	18½
Per dozen	$7.00	7.25	7.50	7.75	8.00	8.50

BRAD.

Plain Eye, Tempered Claws; Full Nickel Plated.

No.	KB20
Weight without Handle, ozs.	4
Length over all, inches	11¼
Weight per dozen about, lbs.	5½
Per dozen	$7.00

One-half Dozen in a Cardboard Box; Six Dozen in a Case.

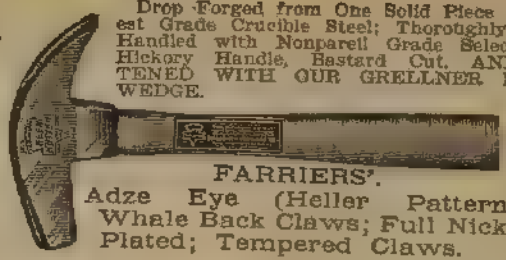
TRADE MARK: E. C. SIMMONS' *KEEN KUTTER*, REGISTERED.

HANDLED HAMMERS.

***KEEN KUTTER**—NICKEL PLATED.**

FARRIERS'.
Adze Eye, Octagon Neck; Round Tapering Poll; Full Nickel Plated; Tempered Claws.

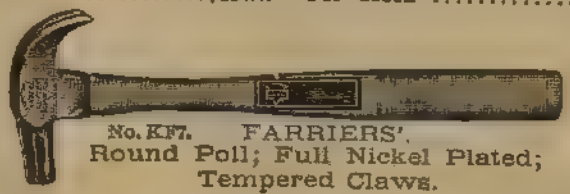
No.	KF8
Weight without Handle, ozs.	10
Length over all, inches	13½
Weight per dozen about, lbs.	12
Per dozen	$11.50



Drop Forged from One Solid Piece of Highest Grade Crucible Steel; Thoroughly Tested; Handled with Nonpareil Grade Select White Hickory Handle, Bastard Cut, AND FASTENED WITH OUR GRELLNER PATENT WEDGE.

FARRIERS'.
Adze Eye (Heller Pattern); Whale Back Claws; Full Nickel Plated; Tempered Claws.

Nos.	KF10	KF12
Weight without Handle, ozs.	10	12
Length over all, inches	13½	14
Weight per dozen about, lbs.	13	15
Per dozen	$9.50	10.50



No. KF7. FARRIERS'.
Round Poll; Full Nickel Plated; Tempered Claws.

PLAIN EYE.

No.	KF6
Weight without Handle, ozs.	7
Length over all, inches	12½
Weight per dozen about, lbs.	9
Per dozen	$7.75

ADZE EYE.

No.	KF7
Weight without Handle, ozs.	7
Length over all, inches	13
Weight per dozen about, lbs.	10½
Per dozen	$9.00

One-half Dozen in a Cardboard Box; Six Dozen in a Case.

***KEEN KUTTER*; BLACK JACK*.**

Drop Forged from One Solid Piece of Highest Grade Crucible Steel; Hardened Face; Tempered Claws, Thoroughly Tested; Handled with Nonpareil Grade Select White Hickory Handle, FASTENED WITH OUR GRELLNER PATENT WEDGE.

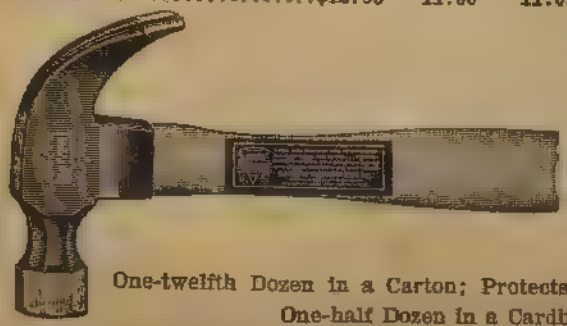
NAIL.
Adze Eye, Plain Face, Dull Black Finish; Polished Face and Tips of Claws.

Nos.	KJ1	KJ1½	KJ2
Weight without Handle, ozs.	20	16	13
Length over all, inches	14	13	13
Weight per dozen about, lbs.	22	18	15
Per dozen	$12.00	11.50	11.00

Dull Black Finish not Easily Rusted.

NAIL.
Adze Eye, Bell Face, Dull Black Finish; Polished Poll and Tips of Claws.

Nos.	KJ11	KJ11½	KJ12
Weight without Handle, ozs.	20	16	13
Length over all, inches	14	13	13
Weight per dozen about, lbs.	22	18	15
Per dozen	$12.00	11.50	11.00



NAIL.
Adze Eye, Octagon Neck and Head, Dull Black Finish, Polished Poll and Tips of Claws.

Nos.	KJ511	KJ511½	KJ512
Weight without Handle, ozs.	21	17	14
Length over all, inches	14	13	13
Weight per dozen about, lbs.	22	18	15
Per dozen	$14.50	14.00	13.50

One-twelfth Dozen in a Carton; Protects the Finish and Makes a Convenient Retailers' Package.
One-half Dozen in a Cardboard Box; Six Dozen in a Case.

TRADE MARK:
E. C. SIMMONS' *KEEN KUTTER.*
REGISTERED.

HANDLED HAMMERS.

***KEEN KUTTER* BLACK JACK*.**

Drop-forged from One Solid Piece of Highest Grade Crucible Steel. Hardened Face and Pein. Thoroughly Tested. Handled with Nonpareil Grade Select White Hickory Handle. FASTENED WITH OUR GRELLNER PATENT WEDGE.

No. KJM0.

MACHINISTS' BALL PEIN.

Octagon Pattern; Dull Black Finish, with Polished Striking Poll and Ball Pein.

Nos.	KJM3 0	KJM2 0	KJM0	KJM1	KJM2	KJM3	KJM4
Weight without Handle, ozs.	8	12	16	20	24	28	[illegible]
Length over all, inches	12½	13½	14½	15	16	16½	17
Weight per dozen about, lbs.	1[illegible]	14	16	21	24	28	30
Per dozen	$12.00	12.00	[illegible]	13.50	14.00	15.50	16.50

One-third Dozen in a Cardboard Box; Six Dozen in a Case.

No. KJR0.

MACHINISTS' RIVETING.

Plain Eye; Dull Black Finish; Polished Face, Top and Cross Pein.

Nos.	KJR0	KJR1	KJR2	KJR3	KJR4	KJR5
Weight without Handle, ozs.	4	7	9	12	[illegible]	[illegible]
Length over all, inches	11	11½	12	12½	[illegible]	[illegible]
Weight per dozen about, lbs.	5	8	[illegible]	[illegible]	[illegible]	[illegible]
Per dozen	$7.00	7.25	7.50	[illegible]	8.00	8.50

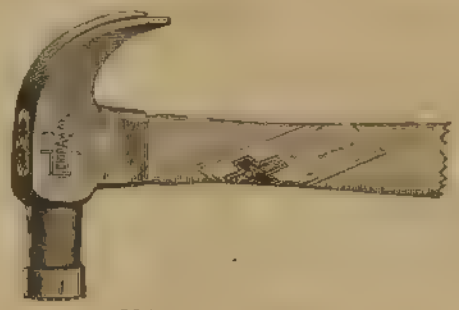
One-half Dozen in a Cardboard Box; Six Dozen in a Case.

TRADE MARK:
CHIPAWAY,
REGISTERED.

HANDLED HAMMERS.

CHIPAWAY*

Drop Forged from One Solid Piece of Special Crucible Steel; Hardened Face; Tempered Claws; Handle Fastened with our Grellner Patent Wedge.



NAIL (or Box).

Adze Eye; Checkered Bell Face; Regular Curved Claws, Polished, with Black Neck Extra Grade White Hickory Handle.

No.	CC11½	CC12
Weight without Handle oz	16	13
Length over all, inches.	13	13
Weight per dozen about, lbs	18	15
Per dozen	$9.00	8.50

One-half Dozen in a Cardboard Box; Six Dozen in a Case.

TRADE MARK CHIPAWAY REGISTERED

HANDLED HAMMERS.

CHIPAWAY*

Drop Forged from One Solid Piece of Special Crucible Steel; Hardened Face; Tempered Claws; Handle FASTENED WITH OUR GRELLNER PATENT WEDGE.

NAIL.

Adze Eye, Plain Face, Regular Curved Claws, Polished; Extra Grade White Hickory Handle.

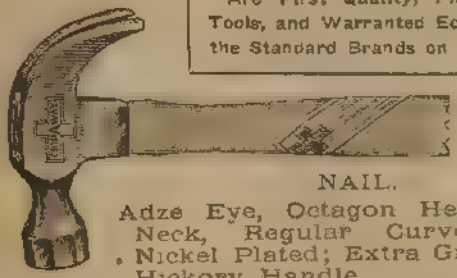
Nos	C1	C1½	C2	C3
Weight without Handle, ozs.	20	16	13	7
Length over all, inches	14	13	13	12
Weight per dozen about, lbs.	22	18	15	10
Per dozen	$9 00	8.50	8.00	7 50

NAIL.

Adze Eye, Bell Face, Regular Curved Claws, Polished, with Black Neck; Extra Grade White Hickory Handle.

Nos.	C11	C11½	C12	C13
Weight without Handle, ozs.	20	16	13	7
Length over all, inches	14	13	13	12
Weight per dozen about, lbs.	22	18	15	10
Per dozen	$9.00	8.50	8.00	7.50

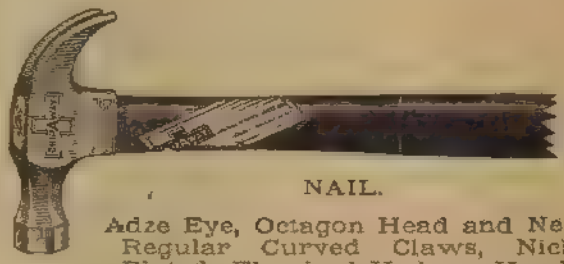
Are First Quality, Finely Polished Tools, and Warranted Equal to any of the Standard Brands on the Market



NAIL.

Adze Eye, Octagon Head, Round Neck, Regular Curved Claws, Nickel Plated; Extra Grade White Hickory Handle.

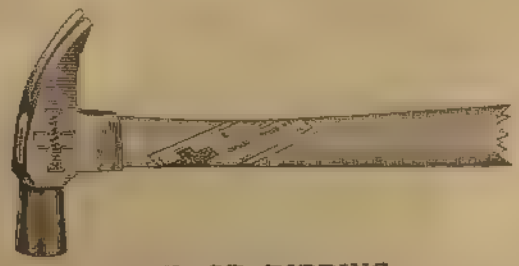
Nos.	C110	C110½	C112	C113
Weight without Handle, ozs.	21	17	14	8
Length over all, inches	14	13	13	12
Weight per dozen about, lbs.	22	18	15	10
Per dozen	$14.00	13.50	13.00	12.50



NAIL.

Adze Eye, Octagon Head and Neck, Regular Curved Claws, Nickel Plated; Ebonized Hickory Handle.

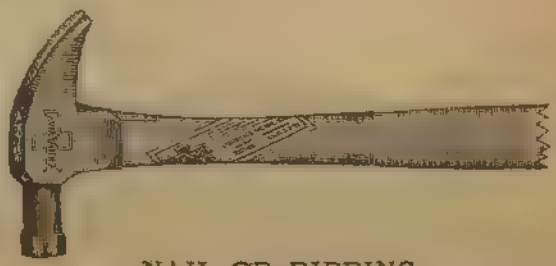
No.	C511½
Weight without Handle, ozs.	17
Length over all, inches	13
Weight per dozen about, lbs.	18
Per dozen	$15 00



NAIL OR RIPPING.

Adze Eye, Plain Face, Straight Claws, Polished; Extra Grade White Hickory Handle.

No.	C301½
Weight without Handle, ozs.	16
Length over all, inches	13
Weight per dozen about, lbs.	18
Per dozen	$8.50



NAIL OR RIPPING.

Adze Eye, Bell Face, Straight Claws, Polished, with Black Neck; Extra Grade White Hickory Handle.

No.	C311½
Weight without Handle, ozs.	16
Length over all, inches	13
Weight per dozen about, lbs.	18
Per dozen	$8.50

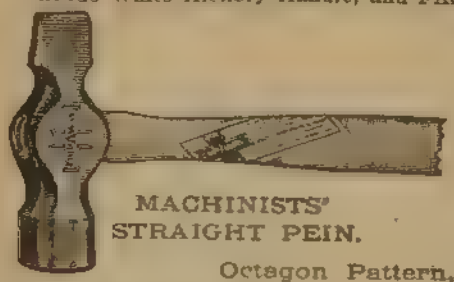
One-half Dozen in a Cardboard Box; Six Dozen in a Case.

TRADE MARK CHIPAWAY, REGISTERED

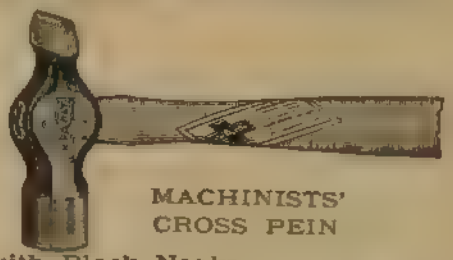
HANDLED HAMMERS.

CHIPAWAY*

Drop Forged from One Solid Piece of Special Crucible Steel, Hardened Face and Pein, Handled with Extra Grade White Hickory Handle, and FASTENED WITH OUR GRELLNER PATENT WEDGE.



MACHINISTS' STRAIGHT PEIN.



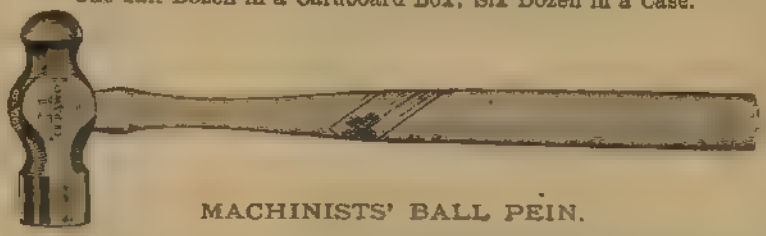
MACHINISTS' CROSS PEIN

Octagon Pattern, Polished, with Black Necks.

Nos.	CS/0	CS/1	CS/2	CS/3
Weight without Handle, ozs.	16	20	24	28
Length over all, inches	14½	15	16	16½
Weight per dozen about, lbs.	16	21	24	28
Per dozen	$12.50	13.50	14.50	15.50

Nos.	CC0	CC1	CC2	CC3
Weight without Handle, ozs.	16	20	24	28
Length over all, inches	14½	15	16	16½
Weight per dozen about, lbs.	16	21	24	28
Per dozen	$12.50	13.50	14.50	15.50

One-half Dozen in a Cardboard Box; Six Dozen in a Case.



MACHINISTS' BALL PEIN.

Octagon Pattern, Polished, with Black Necks.

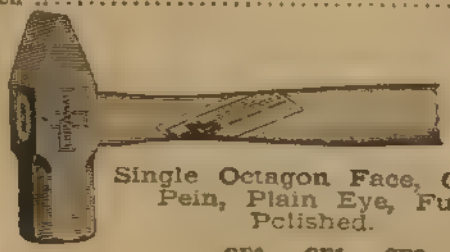
Nos.	CM4/0	CM3/0	CM2/0	CM0	CM1	CM2	CM3	CM4
Weight without Handle, ozs.	6	8	12	16	20	24	28	32
Length over all, inches	12	12½	13½	14½	15	16	16½	17
Weight per dozen about, lbs.	6¾	10½	14	16	21	24	28	30
Per dozen	$12.00	12.00	12.00	12.50	13.50	14.50	15.50	16.50

BLACKSMITHS' HAND.

Plain Eye, Cross Pein, Full Polished.

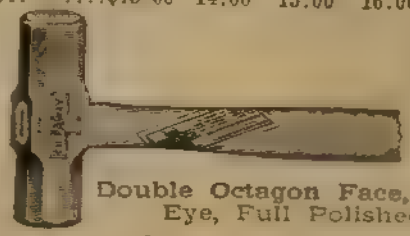
Nos.	CB0	CB1	CB2	CB3	CB4
Weight without Handle, ozs.	26	32	42	48	56
Length over all, inches	15	15½	16	16½	17
Weight per dozen about, lbs.	23	29	36	43	48
Per dozen	$13.00	14.00	15.00	16.00	17.00

PLOW OR ENGINEERS'



Single Octagon Face, Cross Pein, Plain Eye, Full Polished.

Nos.	CE0	CE1	CE2	CE3
Weight without Handle ozs.	18	26	32	40
Length over all, inches	14	15	16	17
Weight per dozen about, lbs	19	24	29	34
Per dozen	$12.00	13.00	14.00	15.00



Double Octagon Face, Plain Eye, Full Polished

No.	CDE2
Weight without Handle, ozs.	38
Length over all, inches	16
Weight per dozen about, lbs	34
Per dozen	$16.50

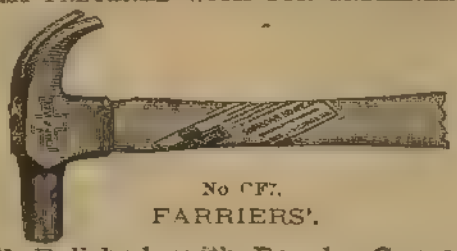
One-third Dozen in a Cardboard Box; Six Dozen in a Case.

TRADE MARK
CHIPAWAY
REGISTERED.

HANDLED HAMMERS.

CHIPAWAY*

Drop Forged from one Solid Piece of Special Crucible Steel; Hardened Face; Handled with Extra Grade White Hickory Handle, and FASTENED WITH OUR GRELLNER PATENT WEDGE.



No. CF7.
FARRIERS'.

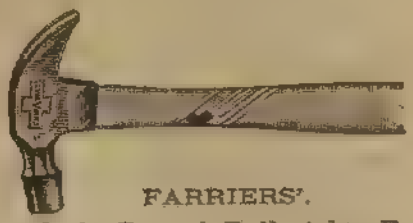
Round Tapering Poll, Polished, with Regular Curved Tempered Claws.

PLAIN EYE.

No.	CF6
Weight without Handle, ozs.	7
Length over all, inches	12½
Weight per dozen about, lbs.	9
Per dozen	$7.75

ADZE EYE.

No.	CF7
Weight without Handle, ozs.	7
Length over all, inches	13
Weight per dozen about, lbs.	10½
Per dozen	$9.00



FARRIERS'.

Octagon Neck, Round Poll, Adze Eye, Polished, with Regular Curved Tempered Claws.

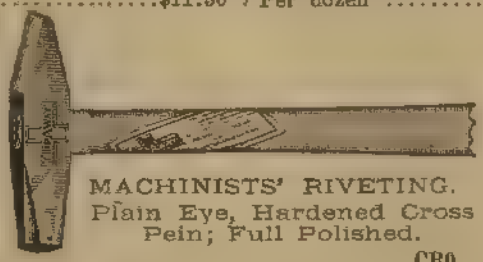
No.	CF8
Weight without Handle, ozs.	10
Length over all, inches	13½
Weight per dozen about, lbs	13
Per dozen	$11.50

FARRIERS'.

(Heller Pattern), Tempered Whale Back Claws, Adze Eye, Polished.

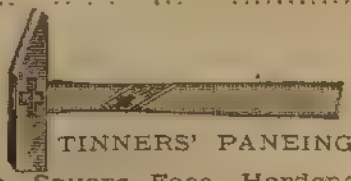
Nos.	CF10	CF12
Weight without Handle, ozs	10	12
Length over all, inches	13½	14
Weight per dozen about, lbs	13	15
Per dozen	$9.50	10.50

Best Material Used in Head and Handle; Claws are Tempered: Faces, Peins, etc., are Hardened; Perfect Uniformity of Pattern and Thorough Hammering of Steel; Heads Polished.



MACHINISTS' RIVETING.
Plain Eye, Hardened Cross Pein; Full Polished.

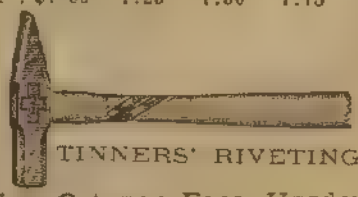
Nos.	CR0	CR1	CR2	CR3	CR4	CR5
Weight without Handle, ozs.	4	7	9	12	15	18
Length over all, inches	11	11½	12	12½	13	13½
Weight per dozen about, lbs	5	8	9½	12½	16	18½
Per dozen	$7.00	7.25	7.50	7.75	8.00	8.50



TINNERS' PANEING.

Plain Eye, Square Face, Hardened Pein; Full Polished.

Nos.	CP1	CP2	CP3	CP4
Face, inches square	11/16	7/8	15/16	1 1/16
Weight without Handle, ozs.	8	12	16	20
Length over all, inches	12	13	14	15
Weight per dozen about, lbs.	8	12	16	20
Per dozen	$6.00	6.25	6.75	7.25



TINNERS' RIVETING.

Plain Eye, Octagon Face, Hardened Pein; Full Polished.

Nos.	CTR1	CTR2	CTR3	CTR4
Wgt. without Handle, ozs.	8	12	16	20
Length over all, inches	12	13	14	15
Wgt. per dozen about, lbs.	8	12	16	20
Per dozen	$6.00	6.25	6.75	7.25

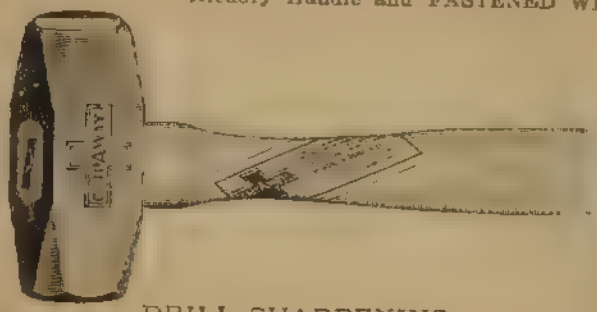
One-half Dozen in a Cardboard Box; Six Dozen in a Case.

TRADE MARK
CHIPAWAY
REGISTERED

HANDLED HAMMERS.

CHIPAWAY*

Drop Forged from One Solid Piece of Special Crucible Steel: Hardened Face; Handled with Extra Grade White Hickory Handle and FASTENED WITH OUR GRELLNER PATENT WEDGE.



DRILL SHARPENING.

Plain Eye, Round-Octagon Face; Full Polished.

No.	C2680
Weight without Handle, ozs.	[illegible]
Length over all, inches	[illegible]
Weight per dozen about, lbs.	[illegible]
Per dozen	$16.00

PROSPECTING.

Round-Octagon Face, Straight Rounding Back, Full Polished.

Nos.	CP10	CP20
Weight without Handle, ozs.	22	28
Length over all, inches	15	15
Weight per dozen about, lbs.	23	27
Per dozen	$14.00	15.00

One-third Dozen in a Cardboard Box; 8 x Dozen in a Case.

BRICK.

Plain Eye, Square Face; Full Polished.

Nos.	C15	C20
Weight without Handle, ozs.	24	32
Length over all, inches	11	1[illegible]
Weight per dozen about, lbs.	[illegible]	2[illegible]
Per dozen	$12.00	13.00

BRICK.

Adze Eye, Square Face; Full Polished.

No.	C10
Weight without Handle, ozs.	24
Length over all, inches	11
Weight per dozen about, lbs.	22
Per dozen	$14.00

SHOE.

Round Flaring Bell Face; Polished, with Black Neck.

Nos.	CSH0	CSH1	CSH2
Weight without Handle, ozs.	11	13	15
Length over all, inches	9½	9½	9½
Weight per dozen about, lbs.	12	14	16
Per dozen	$5.25	5.50	5.75

BRAD

Plain Eye, Round Poll, Tempered Claws; Full Polished.

No.	C9
Weight without Handle, ozs.	4
Length over all, inches	11¼
Weight per dozen about, lbs.	5½
Per dozen	$7.00

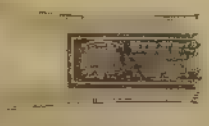
One-half Dozen in a Cardboard Box; Six Dozen in a Case.

TRADE MARK:
E. C. SIMMONS' KEEN KUTTER,
REGISTERED

HATCHETS.

KEEN KUTTER*—NICKEL PLATED.

SOFT STEEL BODY Solid Punched Box Eye, Highest Grade Crucible Forged Steel Bit Extra Tempered; Sharpened Ready for Use Steel Faced Poll, FULL NICKEL PLATED AND ETCHED Select "Nonpareil" Grade Hickory Handle, FASTENED WITH OUR GRELLNER PATENT WEDGE.



No. KNS 1.
Plain Neck and Poll.

No. KNO/1
Octagon Neck and Poll.

No. KNH/1.
Plain Neck and Poll.

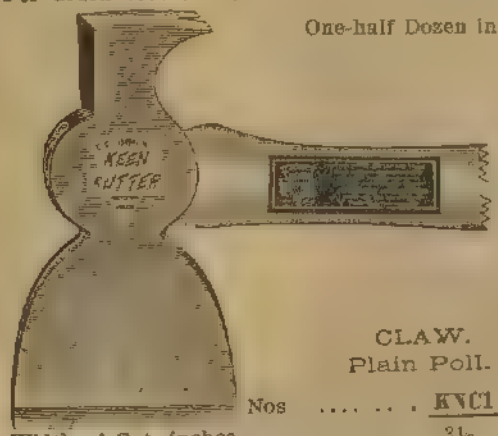
No. KNHO/1
Octagon Neck and Pol.

SHINGLING.

Nos.	KNS 1	KNS 2	KNO/1	KNO/2
Neck and Pol.	Plain	Plain	Octagon	Octagon
Width of Cut, in.	3½	4	3½	4
Length over all, in.	13	14	13	14
Weight per dozen about, lbs.	25	29	25	29
Per dozen	$12.50	13.00	14.50	15.00

Nos.	KNH1	KNH2	KNHO/1	KNHO/2
Neck and Poll	Plain	Plain	Octagon	Octagon
Width of Cut, in.	3¼	3⅝	3¼	3⅝
Length over all, in.	13	14	13	13½
Weight per dozen about, lbs.	24	28	24	28
Per dozen	$13.00	13.50	15.00	15.50

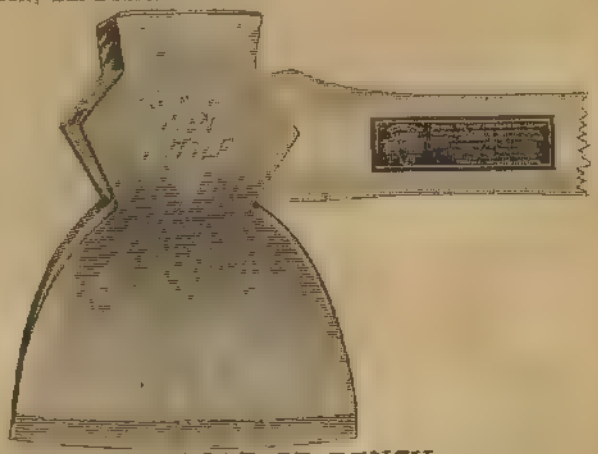
One-half Dozen in a Cardboard Box; Six Dozen in a Case



CLAW.
Plain Poll.

Nos.	KNC1	KNC2
Width of Cut, inches	3½	4
Length over all, inches	13	14
Weight per dozen about, lbs	22	26
Per dozen	$13.50	14.00

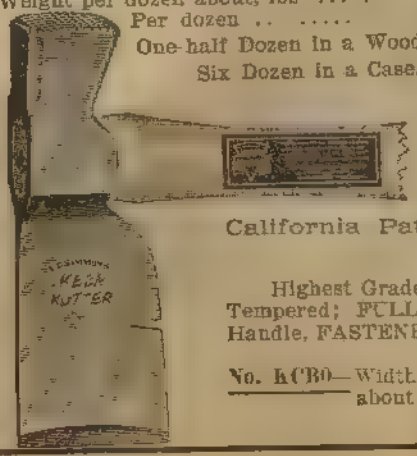
One-half Dozen in a Wood Box; Six Dozen in a Case.



BROAD OR BENCH.
Single Bevel.

Nos.	KNB2	KNB3	KNB4
Width of Cut, inches	4½	5	5½
Length over all, inches	15½	16½	17½
Weight per doz. about, lbs.	27	33	37
Per dozen	$16.50	19.00	20.50

One-half Dozen in a Wood Box; Three Dozen in a Case.



BOX.

California Pattern, Square Head, Checkered Face, 14 Scores, Slightly Crowning Face.

Highest Grade CRUCIBLE STEEL SOLID FORGED BODY and Bit; Hardened Poll; Extra Tempered; FULL NICKEL PLATED AND ETCHED. Select "Nonpareil" Grade Hickory Handle, FASTENED WITH OUR GRELLNER PATENT WEDGE.

Per Dozen

No. KCB0—Width of Cut 2½ inches, Length over all 12 inches, Weight per dozen about 15 lbs. $20.00

One-half Dozen in a Cardboard Box; Six Dozen in a Case

TRADE MARK
E. C. SIMMONS *KEEN KUTTER*,
REGISTERED.

HATCHETS.

Beautiful and Distinctive Fire Blued Finish and Handsome Etching.

***KEEN KUTTER*—BLUE BRAND*.**

Highest Grade Crucible Steel Solid Forged Body and Bit, Extra Tempered; Sharpened Ready for Use; Hardened Poll FULL FIRE BLUED LACQUERED FINISH AND ETCHED, Select "Nonpareil" Grade Hickory Handle, FASTENED WITH OUR GRELLNER PATENT WEDGE.

SHINGLING.
Haines Pattern, Adze Eye, Round Neck, Bell Poll.

Nos	KB0/1	KB0/2
Width of Cut, inches	3¼	3½
Length over all, inches	12	13
Weight per dozen about, lbs.	19	21
Per dozen	$16.50	17.00

HALF.
Haines Pattern, Adze Eye, Round Neck, Bell Poll.

Nos.	KB10	KB20
Width of Cut, inches	3	3¼
Length over all, inches	12	13
Weight per dozen about, lbs.	18	20
Per dozen	$16.50	17.00

One-half Dozen in a Wood Box; Six Dozen in a Case.

Soft Steel Body; Highest Grade Crucible Forged Steel Bit, Extra Tempered; Steel Faced Poll; FULL FIRE BLUED, LACQUERED FINISH AND ETCHED; Select "Nonpareil" Grade Hickory Handle, FASTENED WITH OUR GRELLNER PATENT WEDGE.

SHINGLING.
Plain Poll.

Nos	KBS/1	KBS/2
Width of Cut, inches	3½	4
Length over all, inches	13	14
Weight per dozen about, lbs.	25	29
Per dozen	$12.50	13.00

CLAW.
Plain Poll.

Nos.	KBC1	KBC2
Width of Cut, inches	3½	4
Length over all, inches	13	14
Weight per dozen about, lbs.	25	29
Per dozen	$13.50	14.00

One-half Dozen in a Wood Box; Six Dozen in a Case.

TRADE MARK
E. C. SIMMONS KEEN KUTTER,
REGISTERED.

HATCHETS.

KEEN KUTTER BLUE BRAND*.

Beautiful and Distinctive Fire Blued Lacquered Finish and Handsome Etching.

Soft Steel Body; Highest Grade Crucible Forged Steel Bit Extra Tempered, Sharpened Ready for Use, Steel Faced Poll FULL FIRE BLUED, LACQUERED FINISH AND ETCHED Select Nonpareil Grade Hickory Handle, FASTENED WITH OUR GRELLNER PATENT WEDGE.

SHINGLING.
Octagon Neck and Poll.

Nos.	KB0S/1	KB0S/2
Width of Cut, ins.	3½	4
Length over all, inches	13	14
Weight per doz. about, lbs.	25	28
Per dozen	$14.50	15.00

HALF.
Octagon Neck and Poll.

Nos.	KB0H1	KB0H2
Width of Cut, ins.	3¼	3⅝
Length over all, inches	13	14
Weight per doz. about, lbs.	24	28
Per dozen	$15.00	15.50

LATHING.
Checkered Face.

Nos.	KBL1	KBL2
Width of Cut, inches	2¼	2½
Length over all, ins.	12	13
Weight per dozen about, lbs.	20	24
Per dozen	$12.50	13.00

One-half Dozen in a Wood Box; Six Dozen in a Case.

HALF.
Plain Poll.

Nos.	KBH1	KBH2
Width of Cut, inches	3¼	3⅝
Length over all, inches	13	14
Weight per dozen about, lbs	24	28
Per dozen	$13.00	13.50

One-half Dozen in a Wood Box, Six Dozen in a Case.

BROAD OR BENCH.
Single Bevel.

Nos.	KBB2	KBB3	KBB4
Width of Cut, inches	4½	5	5½
Length over all, inches	15½	16	17
Weight per doz. about, lbs.	32	40	43
Per dozen	$16.50	17.00	20.50

One-half Dozen in a Wood Box; Three Dozen in a Case.

HUNTERS'. Yankee Pattern.

Per Dozen

No. KBY1 Width of Cut 3¼ inches; Length over all 16 inches Weight per dozen about 26 lbs. $13.00

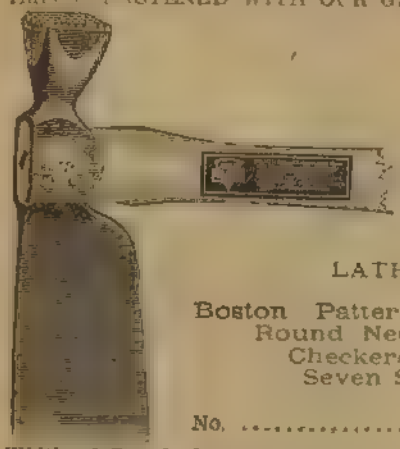
One-half Dozen in a Wood Box Six Dozen in a Case

TRADE MARK.
E. C. SIMMONS' KEEN KUTTER,
REGISTERED.

HATCHETS.

KEEN KUTTER BLUE BRAND.

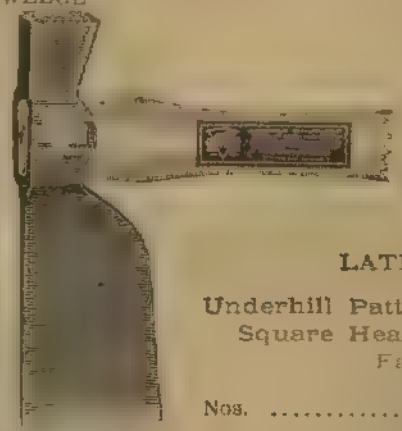
Highest Grade Crucible Steel Solid Forged Body and Bit, Extra Tempered, Sharpened Ready for Use; Hardened Poll. FULL FIRE BLUED, LACQUERED FINISH AND ETCHED; Select "Nonpareil" Grade Hickory Handle FASTENED WITH OUR GRELLNER PATENT WEDGE



LATHING

Boston Pattern, Plain Eye, Round Neck, Square Checkered Face. Seven Scores.

No.	KB/100
Width of Cut, inches	2¼
Length over all, inches	13
Weight each, without Handle, ozs	14
Weight per dozen about, lbs.	18
Per dozen	$20 00



LATHING.

Underhill Pattern, Plain Eye, Square Head, Checkered Face

Nos.	KB89	KB90
Width of Cut, inches	2	2 1/16
No. of Scores	8	9
Length over all, inches	13	13
Weight each, without Handle, ozs.	13	15
Weight per dozen about, lbs	17	19
Per dozen	$18.00	18.50

LATHING.

Adze Eye, Square Neck and Head, Checkered Face, Eight Scores.

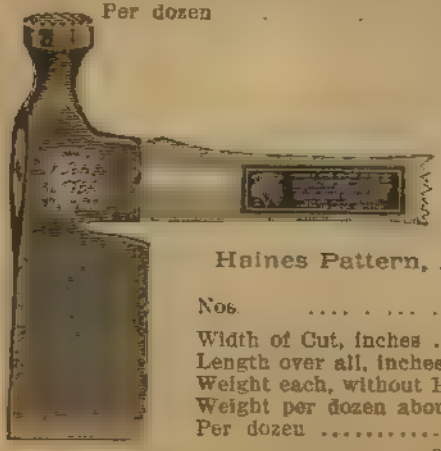
No	KB99
Width of Cut, inches	2¼
Length over all, inches	13
Weight each, without Handle, ozs	14
Weight per dozen about, lbs.	20
Per dozen	$17.00

LATHING.

Adze Eye, Octagon Neck, Round Head, Checkered Face, Eight Scores.

No.	KB0 90
Width of Cut, inches	2⅜
Length over all, inches	13
Weight each, without Handle, ozs.	16
Weight per dozen about, lbs.	20
Per dozen	$17.00

Beautiful and Distinctive Fire Blued Finish and Handsome Etching.



LATHING.

Haines Pattern, Adze Eye, Round Neck, Bell Poll, Checkered Face, Seven Scores.

Nos.	KB100	KB200
Width of Cut, inches	2	2¼
Length over all, inches	13	13
Weight each, without Handle, ozs.	14	16
Weight per dozen about, lbs.	18	23
Per dozen	$16.50	17.00

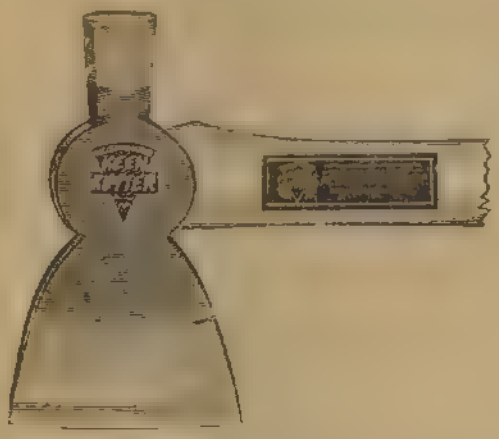
One-half Dozen in a Wood Box, Six Dozen in a Case

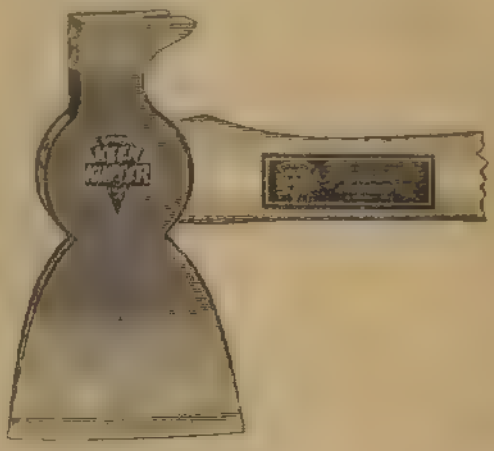
TRADE MARK: E. C. SIMMONS KEEN KUTTER

HATCHETS.

KEEN KUTTER®—BRONZED.

Soft Steel Body; Solid Punched Box Eye; Highest Grade Crucible Forged Steel Bit, Extra Tempered Sharpened Ready for Use; Steel Faced Poll GOLD BRONZED BODY; EXTRA POLISHED HEAD AND BIT; Select "Nonpareil" Grade Hickory Handle, FASTENED WITH OUR GRELLNER PATENT WEDGE.





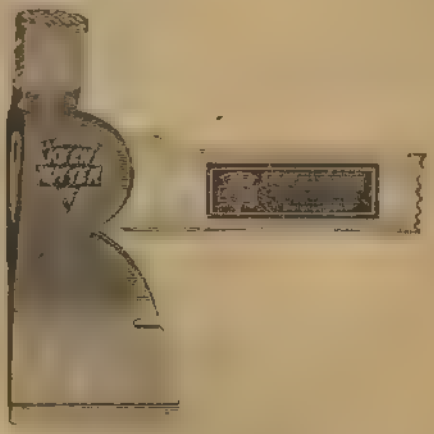
SHINGLING.
Plain Poll.

Nos	KS 0	KS 1	KS 2	KS 3
Width of Cut, inches	3¼	3½	4	4½
Length over all, inches	12	13	14	14½
Wgt per dozen about, lbs	[illegible]	[illegible]	[illegible]	[illegible]
Per dozen	$7.50	8.00	8.50	9.00

CLAW.
Plain Poll.

No.	KC1	KC2	KC3
Width of Cut, inches	3½	4	4½
Length over all, inches	13	14	14½
Weight per dozen about, lbs.	23	28	30
Per dozen	$9.00	9.50	10.00

KEEN KUTTER Hatchets are Guaranteed to be of Superior Selection and Quality and Lead the World.



HALF.
Plain Poll.

Nos.	KH1	KH2	KH3
Width of Cut, inches	3¼	3⅝	4
Length over all, inches	12½	13½	14½
Weight per dozen about, lbs	[illegible]	27	30
Per dozen	$8.50	9.00	8.50

LATHING
Checkered Face.

Nos	KL1	KL2
Width of Cut, inches	2¼	2½
Length over all, inches	12	13
Weight per dozen about, lbs.	18	22
Per dozen	$8.00	8.50

One half Dozen in a Cardboard Box; Two Dozen in a Case.

TRADE MARK
E. C. SIMMONS' KEEN KUTTER
REGISTERED

HATCHETS.

KEEN KUTTER

Soft Steel Body; Solid Punched Box Eye; Highest Grade Crucible Forged Steel Bit, Extra Tempered; Sharpened Ready for Use; Steel Faced Poll; Select "Nonpareil" Grade Hickory Handle, FASTENED WITH OUR GRELLNER PATENT WEDGE

BROAD OR BENCH.
SINGLE BEVEL, Gold Bronzed Body, Extra Polished Head and Bit.

Nos.	KB1	KB2	KB3
Width of Cut, inches	4	4½	5
Length over all, inches	14	14½	15
Weight per dozen about, lbs.	23	26	30
Per dozen	$10.50	11.50	12.00

Nos.	KB4	KB5	KB6
Width of Cut, inches	5½	6	6½
Length over all, inches	15½	16½	17½
Weight per dozen about, lbs.	36	42	49
Per dozen	$14.50	16.50	18.00

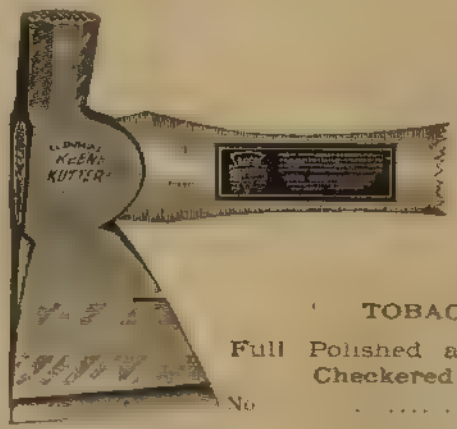
BROAD OR BENCH.
DOUBLE BEVEL, Gold Bronzed Body, Extra Polished Head and Bit.

Nos	KDB2	KDB3	KDB4
Width of Cut, inches	4¾	5¼	5¾
Length over all, inches	14½	15	17½
Weight per dozen about, lbs.	14½	15	17½
Per dozen	$11.50	13.00	14.50

One-half Dozen in a Cardboard Box; Three Dozen in a Case.

BARREL OR BOX.
Gold Bronzed Body, Extra Polished Bit and Head, with Special Top Nail Slot, Square Checkered Face.

No.	KGB10
Width of Cut, inches	2
Length over all, inches	11½
Weight per dozen about, lbs.	14
Per dozen	$12.00



TOBACCO.
Full Polished and Etched; Checkered Poll.

No	KT2
Width of Cut, inches	6½
Length over all, inches	15
Weight per dozen about, lbs.	31
Per dozen	$12.50

One-half Dozen in a Cardboard Box; KGB10 Two Dozen; KT2 Six Dozen in a Case.

HUNTERS'.

Yankee Pattern, Full Polished and Etched, with Sportsmen's Pattern Handle.

No	KP3 0
Width of Cut, inches	2¾
Length over all inches	13½
Weight per dozen about, lbs.	20
Per dozen	$11.60

Yankee Pattern, Gold Bronzed Body, Extra Polished Head and Bit.

Nos.	KY0	KY1
Width of Cut, inches	3⅛	3¼
Length over all, inches	13½	14
Weight per dozen about, lbs	21	24
Per dozen	$9.25	9.50

One-half Dozen in a Cardboard Box Two Dozen in a Case

TRADE MARK
E. C. SIMMONS' *KEEN KUTTER*.
REGISTERED

HATCHETS.

KEEN KUTTER*—PAINTED BLACK.

Soft Steel Body; Solid Punched Box Eye; Highest Grade Crucible Forged Steel Bit, Extra Tempered and Sharpened; Body and Poll Painted Black, Polished Bit and Striking Face; Select Nonpareil Grade Hickory Handle, FASTENED WITH OUR GRELLNER PATENT WEDGE

CLAW, Plain Pol.

	KC10	KC20	KC30
Nos	11½	1	11½
Width of Cut, inches	13	14	14½
Length over all, inches	23	28	30
Weight per dozen about, lbs.	$9 00	9 50	10 00
Per dozen			

One-half Dozen in a Cardboard Box; Two Dozen in a Case

The Mark

E. C. SIMMONS
KEEN KUTTER
TRADE ST. LOUIS MARK
U.S.A.

—AND—

The Motto

"The Recollection of QUALITY Remains long after the PRICE is forgotten." E. C. Simmons

TRADE MARK REGISTERED

TRADE MARK:
E. C. SIMMONS' *KEEN KUTTER*.
REGISTERED.

HATCHETS.

Will not Easily Rust.

***KEEN KUTTER* BLACK JACK*.**

Soft Steel Body, Solid Punched Box Eye, Highest Grade Crucible Forged Steel Bit, Extra Tempered; Sharpened Ready for Use. Steel Faced Bill. BLACK OR NEW METAL ANTI-RUST FINISH. Select "Nonpareil" Grade Hickory Handle FASTENED WITH OUR CREALNER PATENT WEDGE.

SHINGLING.
Plain Poll.

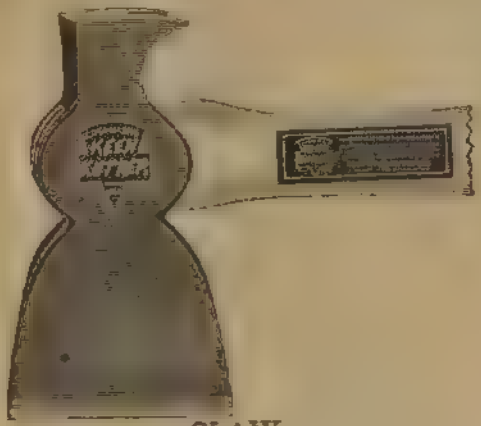
Nos.	KJS/1	KJS/2
Width of Cut, inches,	3½	4
Length over all, in..	13	14
Weight per dozen about, lbs.	22	25
Per dozen	$8.00	8.50

HALF.
Plain Poll.

Nos.	KJH1	KJH2
Width of Cut, inches,	3¼	3⅝
Length over all, in..	12½	13½
Weight per dozen about, lbs.	20	23
Per dozen	$8.50	9.00

LATHING.
Checkered Face.

Nos.	KJL1	KJL2
Width of Cut inches,	2¼	2½
Length over all, in..	12	13
Weight per dozen about, lbs.	18	22
Per dozen	$8.00	8.50

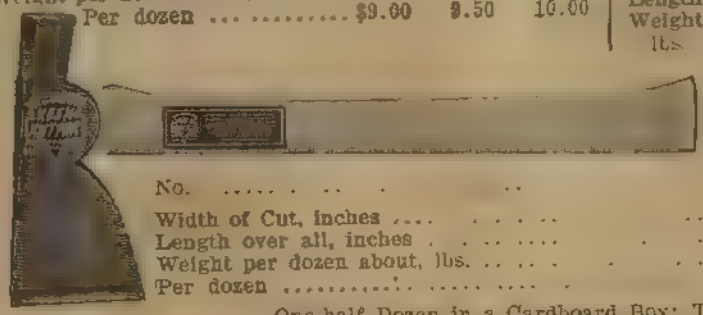


CLAW.
Plain Poll.

Nos.	KJC1	KJC2	KJC3
Width of Cut, inches	3½	4	4½
Length over all, inches	13	14	14½
Weight per dozen about, lbs.	23	28	30
Per dozen	$9.00	9.50	10.00

BROAD OR BENCH.
Single Bevel.

Nos.	KJB2	KJB3	KJB4	KJB5
Width of Cut, inches	4½	5	5½	6
Length over all, inches..	14	14½	15½	16½
Weight per dozen about, lbs.	26	29	35	40
Per dozen	$11.50	13.00	14.50	16.50



RIG BUILDERS' OR OIL DERRICK.
Extra Heavy Checkered Face, with Cold-Chisel Edge.

No.	KRB
Width of Cut, inches	3⅜
Length over all, inches	18
Weight per dozen about, lbs.	31
Per dozen	$15.00

One-half Dozen in a Cardboard Box; Two Dozen in a Case.

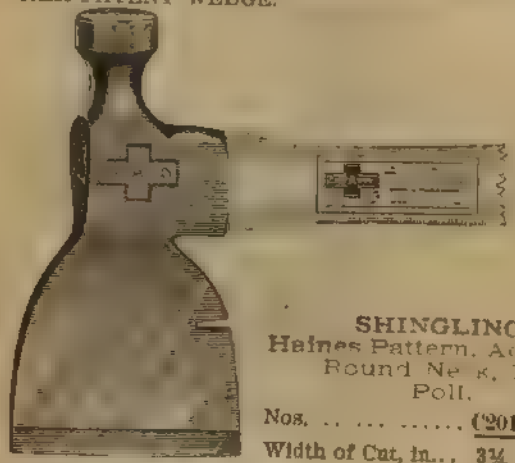
TRADE MARK CHIPAWAY. REGISTERED

HATCHETS.

A Handsome High Grade Too.

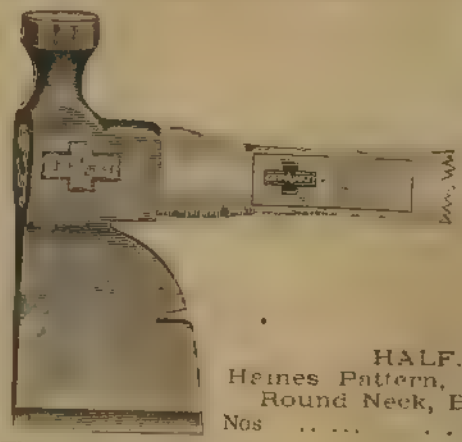
CHIPAWAY*—FULL POLISHED.

Special Crucible Steel Solid Forged Body and Bit Extra Tempered Sharpened Ready for Use, Hardened Poll, FULL POLISHED AND ETCHED, Extra Grade White Hickory Handle FASTENED WITH OUR GRELLNER PATENT WEDGE.



SHINGLING.
Haines Pattern, Adze Eye, Round Neck, Bell Poll.

Nos.	C201	C202
Width of Cut, in.	3¼	3½
Length over all, inches	12	13
Weight per dozen about, lbs.	19	21
Per dozen	$14.50	15.00



HALF.
Haines Pattern, Adze Eye, Round Neck, Bell Poll.

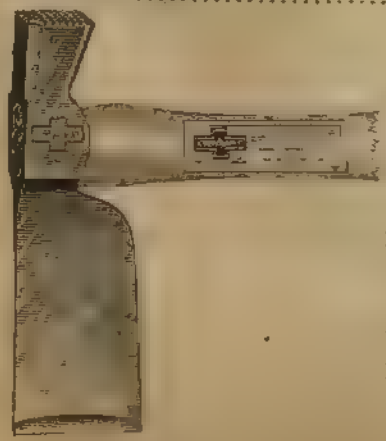
Nos.	C301	C302
Width of Cut, inches	3	3¼
Length over all, inches	12	13
Weight per dozen about, lbs.	18	20
Per dozen	$14.50	15.00

LATHING.
Philadelphia Pattern, Plain Eye, Square Head, Checkered Face, Full Polished and Etched.

No.	C410
Width of Cut, inches	2¼
Number of Scores	7
Weight each, without Handle, ozs.	10
Length over all, inches	12
Weight per dozen about, lbs.	15
Per dozen	$12.00

LATHING.
Haines Pattern, Checkered Face, Adze Eye, Round Neck, Bell Poll. Full Polished and Etched.

No.	C401
Width of Cut, inches	2 1/16
Number of Scores	9
Weight each, without Handles, ozs.	19
Length over all, inches	13
Weight per dozen about, lbs.	20
Per dozen	$15.00



LATHING.
Underhill Pattern, Plain Eye, Square Head, Checkered Face, Full Polished and Etched.

Nos.	C415	C420	C425
Width of Cut, inches	2	2 1/16	2 1/16
Number of Scores	8	9	10
Weight each, without Handle, ozs.	13	15	16
Length over all, inches	12½	12½	12½
Weight per dozen about, lbs.	17	19	20
Per dozen	$16.00	16.50	16.50

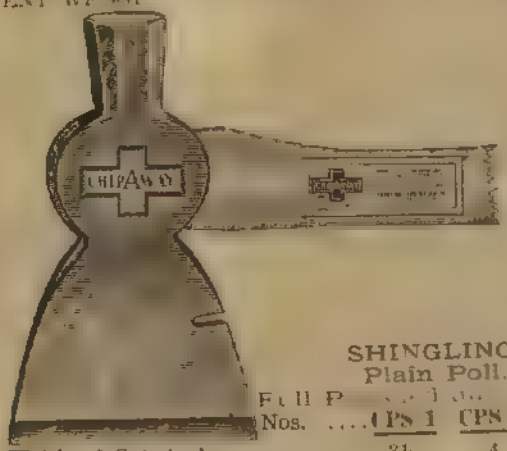
One-half Dozen in a Cardboard Box; Six Dozen in a Case.

TRADE MARK: CHIPAWAY REGISTERED

HATCHETS.

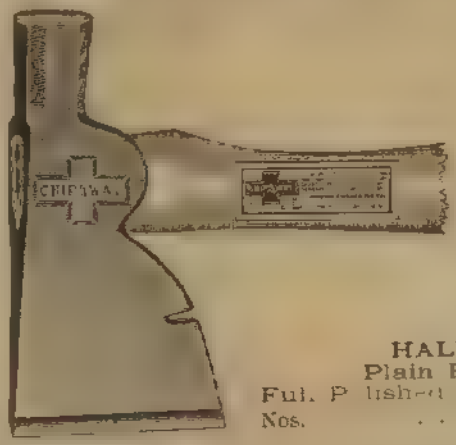
CHIPAWAY

Soft Steel Body, Solid Punched Box Eye, Special Crucible Forged Steel Bit Extra Tempered, Sharpened Ready for Use. Hardened Poll. Extra Grade White Hickory Handle. FASTENED WITH OUR GRELLNER PATENT WEDGE.



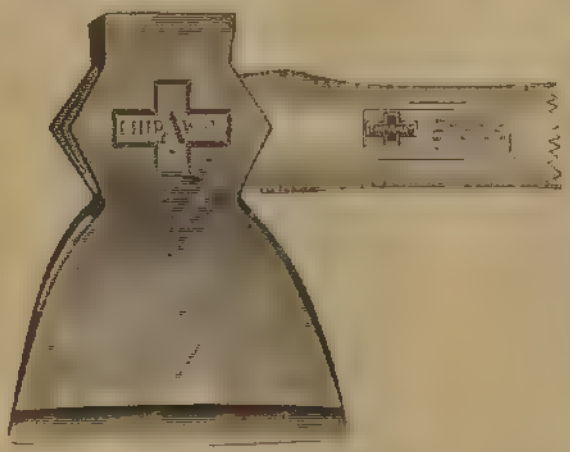
SHINGLING.
Plain Poll.
Full Polished and Etched

Nos.	CPS 1	CPS 2	CPS 3
Width of Cut, inches	3½	4	[illegible]
Length over all, inches	13	14	14½
Weight per dozen about lbs	22	25	30
Per dozen	$10.50	11.00	11.50



HALF
Plain Poll.
Full Polished and Etched

Nos.	CPH1	CPH2
Width of Cut, inches	3¼	3⅝
Length over all, inches	12½	13½
Weight per dozen about lbs	20	25
Per dozen	$11.00	11.50



BROAD OR BENCH.
Single Bevel.
Full Polished and Etched

Nos.	CPB2	CPB3	CPB4
Width of Cut, inches	4½	5	5½
Length over all, inches	14½	15	15½
Weight per dozen about, lbs.	26	30	36
Per dozen	$14.50	17.00	18.50

BROAD OR BENCH
Single Bevel, FIRE BRONZED Body, with Polished Bit.

Nos.	CB1	CB2	CB3
Width of Cut, inches	4	4½	5
Length over all, inches	14	14½	15
Weight per dozen about, lbs	21	26	29
Per dozen	$10.50	11.50	13.00

Nos.	CB4	CB5	CB6
Width of Cut, inches	5½	6	6½
Length over all, inches	15½	16½	17¾
Weight per dozen about, lbs.	36	41	49
Per dozen	$14.50	16.50	18.00

HUNTERS'.

Yankee Pattern, Fire Bronzed Body with Polished Bit

Nos.	CY0	CY1
Width of Cut, inches	3	3¼
Length over all, inches	13¾	14½
Weight per dozen about, lbs	21	24
Per dozen	$9.25	9.50

Yankee Pattern, Full Polished and Etched, with Sportsmen's Pattern Handle.

No.	CPS/0
Width of Cut, inches	2¾
Length over all, inches	14½
Weight per dozen about lbs	20
Per dozen	$9.00

One-half Dozen in a Cardboard Box; Two Dozen in a Case.

TRADE MARK: CHIPAWAY, REGISTERED.

HATCHETS.

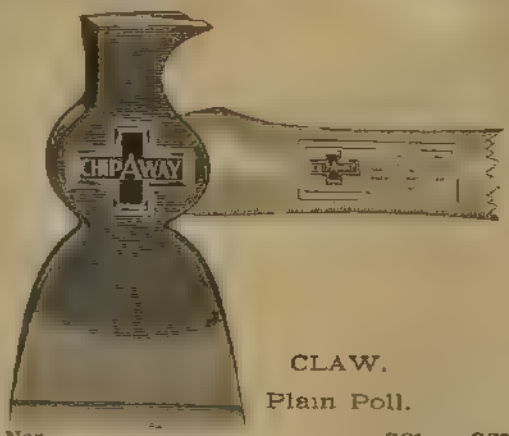
High Grade Tool Steel Bits Forged from Special Steel.

CHIPAWAY*—BRONZED.

Soft Steel Body; Solid Punched Box Eye, Special Crucible Forged Steel Bit, Extra Tempered, Sharpened Ready for Use; Hardened Poll, FIRE BRONZED BODY, WITH POLISHED BIT; Extra Grade White Hickory Handle, **FASTENED WITH OUR GRELLNER PATENT WEDGE.**

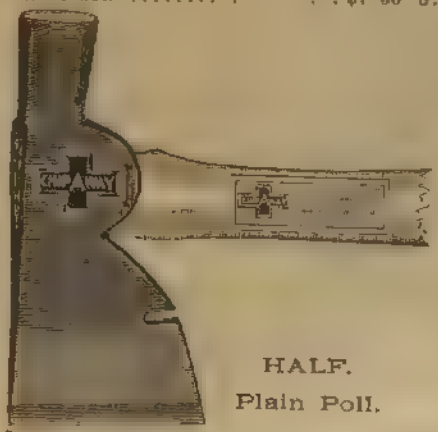
SHINGLING.
Plain Poll.

Nos.	CS/0	CS/1	CS/2	CS/3
Width of Cut, inches	3¼	3½	4	4½
Length over all, inches	12	13	14	14½
Weight per dozen about, lbs	20	22	25	30
Per dozen	$7.50	8.00	8.50	9.00



CLAW.
Plain Poll.

Nos.	CC1	CC2	CC3
Width of Cut, inches	3½	4	4½
Length over all, inches	13	14	14½
Weight per dozen about, lbs.	23	28	30
Per dozen	$9.00	9.50	10.00



HALF.
Plain Poll.

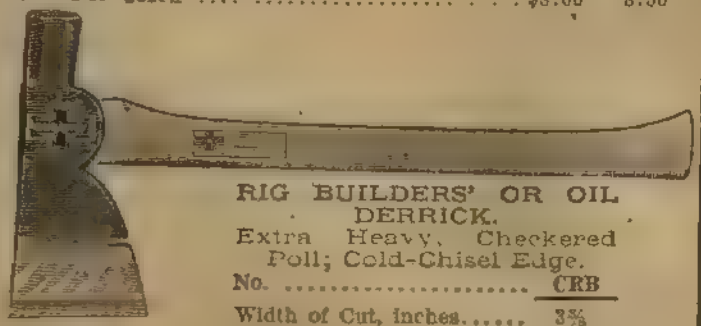
Nos.	CH1	CH2	CH3
Width of Cut, inches	3¼	3⅝	4
Length over all, inches	12½	13½	14½
Weight per dozen about, lbs	20	23	30
Per dozen	$8.50	9.00	9.50

LATHING.
Checkered Face.

Nos.	CL1	CL2
Width of Cut, inches	3¼	3½
Length over all, inches	12	13
Weight per dozen about, lbs	18	22
Per dozen	$8.00	8.50

BARREL OR BOX.
Square Checkered Head, with Extra Long Nail Slot.

No.	CBB/0
Width of Cut, inches	2⅞
Length over all, inches	12¼
Wgt. per dozen about, lbs.	18
Per dozen	$12.00



RIG BUILDERS' OR OIL DERRICK.
Extra Heavy, Checkered Poll; Cold-Chisel Edge.

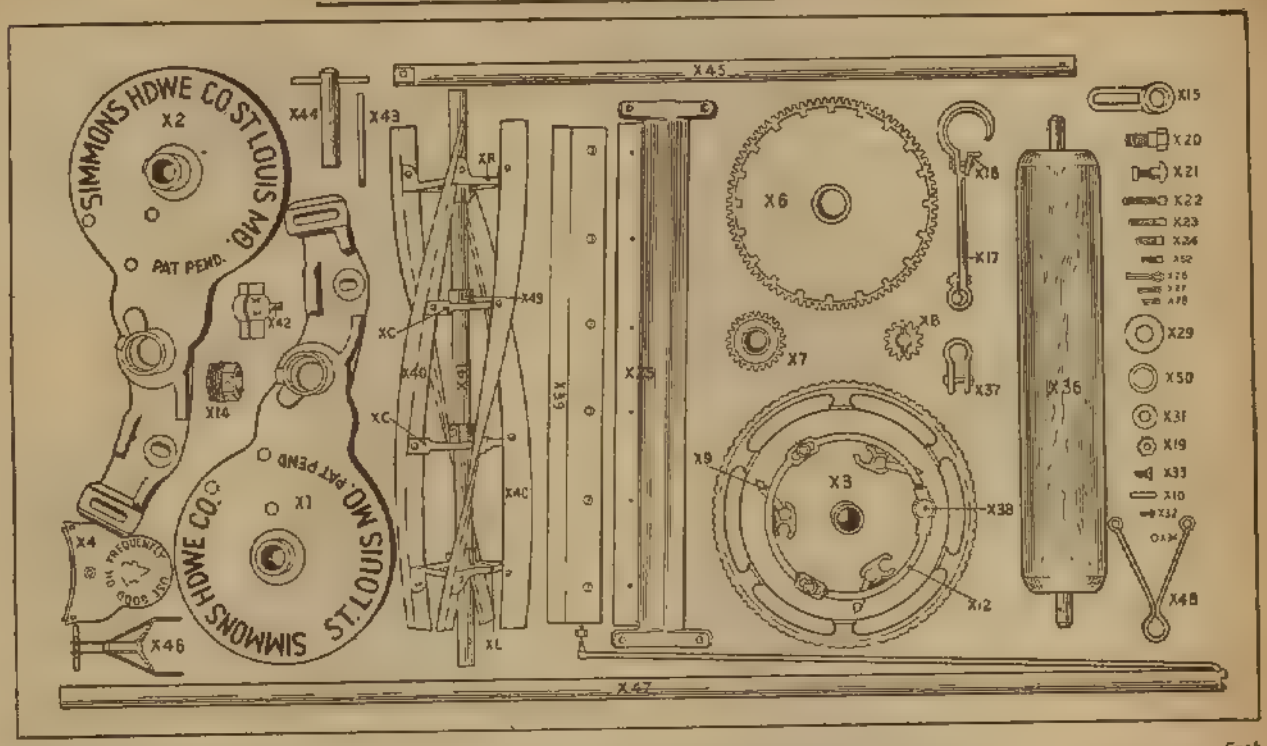
No.	CRB
Width of Cut, inches	3⅜
Length over all, inches	18
Wgt. per dozen about, lbs.	31
Per dozen	$15.00

One half Dozen in a Cardboard Box; Two Dozen in a Case.

TRADE MARK: E. C. SIMMONS' KEEN KUTTER. REGISTERED.

‡EXTRA PARTS FOR LAWN MOWERS.

KEEN KUTTER*. TRIPLE GEAR, PONY MOWERS (1907 MODEL.)



	Each
‡No. X1—Right Frame, Cast Iron	$4 00
‡No. X2—Left Frame, Cast Iron	4 00
‡No. X3—Drive Wheel, Cast Iron, both alike	3.00
‡No. X4—Gear Shield, Cast Iron, both alike	50
‡No. X6—Large Gear, Cast Iron, both alike	2.00
‡No. X7—Intermediate Gear, Cast Iron, both alike	.50
‡No. X8—Pinion, Cast Iron, both alike	30
‡No. X9—Pawls, Cast Iron	10
‡No. X10—Pawls for Cast Pinion No. X8, Steel	05
‡No. X12—Ring for shifting Pawls, Cast Iron	1 00
‡No. X13—Journal Box, Cast	60
‡No. X14—Journal Cap, Cast	40
‡No. X15—Roller Bracket, Malleable, both alike	.30
‡No. X17—Draft Hook, Cast Iron, both alike	80
‡No. X18—Draft Hook Attachment, Cast Iron, both alike	20
‡No. X19—Nut, for Wheel Pawl Shifter, Cast	20
‡No. X20—Hexagon Head Steel Screw, Fastening Lower Bar to Frame	10
‡No. X21—Bolt for Roller Bracket No. X15	10
‡No. X22—Rocking Adjusting Screw, for Cutter Bar, Steel	10
‡No. X23—Center Set Screw, for Cutter Bar, Steel	.10
‡No. X24—Set Screw, Attaching Wheel Axle to Frames, Steel	10
‡No. X25—Lower Bar for 25 inch Mower, Cast Iron	3 50
‡No. X30—Lower Bar for 30 inch Mower, Cast Iron	4 00
‡No. X26—Cotter Pin for Wheel Axle, Steel	05
‡No. X27—Cotter Pin for Roller Bracket Bolt, Steel	05
‡No. X28—Cotter Pin for Pawl Shifter, Steel	03
‡No. X29—Washer for Cutter Bar Screw No. X20, Steel	.10
‡No. X31—Washer for Pawl Shifter Bolt No. X38, and Roller Bracket Bolt No. X21	05
‡No. X33—Flat Head Screw, Fastening Stationary Knife to Cutter Bar, Steel	.10

	Each
‡No. X32—Screw for Fastening Shield No. X4 to Frame, Steel	$ 05
‡No. X34—Pillow Block for Journal Cap, Brass	05
‡No. X36—Wood Roller, 25 inch	1 50
‡No. X36A—Wood Roller, 30 inch	1 75
‡No. X37—Clamp for Holding Draft Attachment No. X48, Malleable	40
‡No. X38—Bolt, for Pawl Shifter	10
‡No. X39—Lower Blade, Steel, Stationary Knife, 25 inch	4.50
‡No. X39A—Lower Blade, Steel, Stationary Knife, 30 inch	5 00
‡No. X40—Spiral Cutter Blade, Steel, 25 inch	1.10
‡No. X40A—Spiral Cutter Blade, Steel, 30 inch	1 20
‡No. X41—Reel Shaft, Steel, 25 inch	1 50
‡No. X41A—Reel Shaft, Steel, 30 inch	1 75
‡No. X42—Oil Screw for Journal Box No. X13	15
‡No. X43—Adjusting Pin for Journal Cap No. X14, Steel	15
‡No. X44—Socket or Cup Wrench, for Adjusting Set Screws, Steel	40
‡No. X45—Wheel Axle, 25 inch, Steel	1 00
‡No. X45A—Wheel Axle, 30 inch, Steel	1 10
‡No. X46—Wood Handle, With Braces	2 00
‡No. X47—Side Draft Attachment, Steel	2 00
‡No. X48—Front Draft Attachment, Steel	80
‡No. X49—Set Screw Fastening Spider to Reel Shaft, Steel	10
‡No. X50—Wheel Washer, Steel	08
‡No. X51—Rod for Front Draft Attachment, 25 inches, Steel	1 00
‡No. X51A—Rod for Front Draft Attachment, 30 inches, Steel	1 10
‡No. XR—Right Hand Reel Spider, Malleable	1 00
‡No. XL—Left Hand Reel Spider, Malleable	1.00
‡No. XC—Center Reel Spider, Malleable	1 00
‡No. X52—Set Screw Holding Threaded Journal Cap, Steel	10
‡Oil Can	50
‡Monkey Wrench	1 00

Packed Loose.

DIRECTIONS FOR ORDERING PARTS.

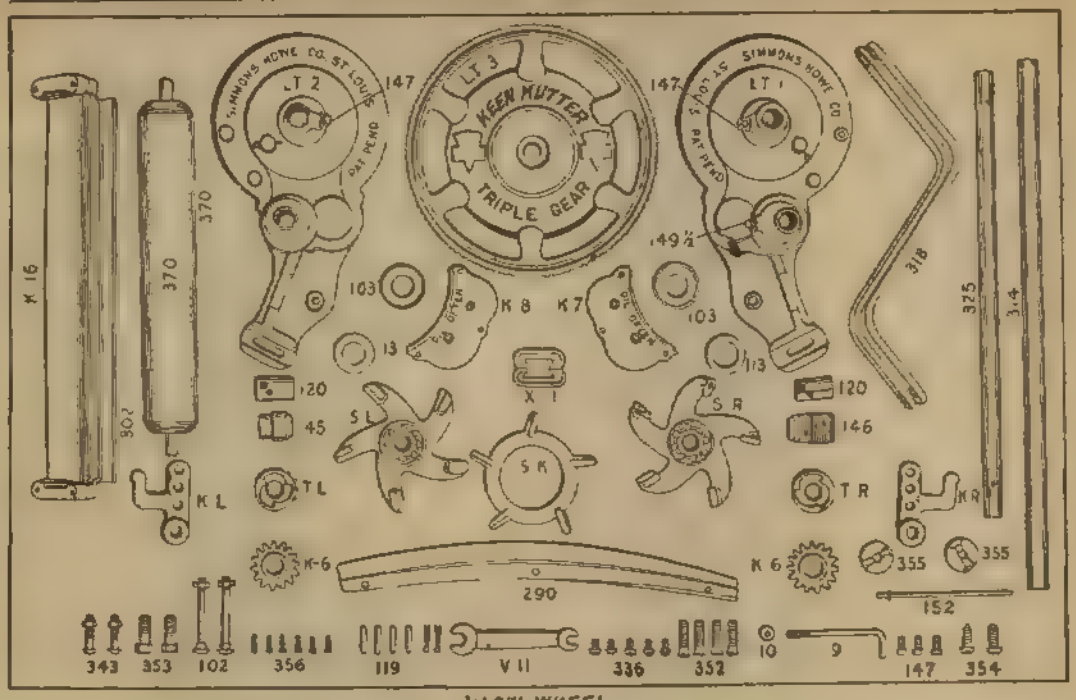
IN ORDERING PARTS ALWAYS GIVE THE NUMBER AND NAME OF PART WANTED. EXTRA PARTS CAN BE SENT BY MAIL OR EXPRESS AT SLIGHT COST.

‡Goods marked thus (‡) are not carried in stock and can only be furnished by shipment direct from factory.

TRADE MARK: E. C. SIMMONS' KEEN KUTTER, REGISTERED

‡EXTRA PARTS FOR LAWN MOWERS.

KEEN KUTTER* Triple Gear, Ball Bearing Lawn Mowers. (1906 Model only, Blue and Silver Finish.)



‡LOW WHEEL.

	Each
‡No. LT1 Right Frame, Cast Iron	$1.25
‡No. LT2—Left Frame, Cast Iron	1.25
‡No. LT3—Drive Wheel, Cast Iron, Both Alike	1.00
‡No. K7—Right Gear Shield, Cast Iron	.20
‡No. K8—Left Gear Shield, Cast Iron	.20
‡No. TR—Right Hand Pinion, Cast Iron	.25
‡No. TL—Left Hand Pinion, Cast Iron	.25
‡No. KR—Right Hand Roller Bracket, Malleable	.20
‡No. KL—Left Hand Roller Bracket, Malleable	.20
‡No. K6—Intermediate Gear, Cast Iron	.25
‡No. 5R Right Hand Reel Spider, for 5 Knife Spiral Cutter	.80
‡No. 5L—Left Hand Reel Spider, for 5 Knife Spiral Cutter	.80
‡No. 5K—Center Spider, for 5 Knife Spiral Cutter	.30
‡No. V11—Wrench, Malleable	.15
‡No. X11—Collar for Handle, Malleable	.10

Lower Bar, Cast Iron.

Nos	‡K10	‡K12	‡K14	‡K16	‡K18	‡K20	‡K22	‡K24
Length, inches	10	12	14	16	18	20	22	24
Each	$1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70

	Each
‡No. 9—Handle Hook, Cast Iron	$0.10
‡No. 10—Handle Hook Nut	.03
‡No. 102—Bolt for Handle Brace	.08
‡No. 103—Ball Case, Steel	.35
‡No. 113—Ball Retainer, Steel	.10
‡No. 119 Pawl for Cast Pinions Nos. TR and TL Steel	.05
‡No. 120—Bushing for Cast Pinions, Nos. TR and TL, Steel	.20
‡No. 145—Left Hand Ball Bearing Cone, Steel	.20
‡No. 146—Right Hand Ball Bearing Cone, Steel	.50
‡No. 147—Set Screw, Steel, for holding Frame to Axle and Spider to Reel Shaft	$0.05
‡No. 129½—Set Screw, Steel, under Steel Cone No. 146	.05
‡No. 152—Pin Adjusting Cone No. 146 and Turning Wheel No. LT3	.05

Reel Complete, 5 Blades.

Nos	‡250	‡251	‡252	‡253	‡254	‡255	‡256	‡257
Size, inches	10	12	14	16	18	20	22	24
Each	$3.75	4.50	5.25	6.00	6.75	7.50	8.25	9.00

	Each
‡No. 290—Spiral Cutter Blade, Steel, All Sizes, (Give Cutting Width of Mower)	$0.80
‡No. 300 Wood Handle (Without Braces)	.75
‡No. 302—Lower Blade Steel, (Stationary Knife) all Sizes (Give Cutting Width of Mower)	1.00
‡No. 314—Front Axle, Steel, All Sizes	.75
‡No. 318—Handle Brace, Wrought, All Sizes	.40
‡No. 325 Reel Shaft, Steel, All Sizes	.75
‡No. 336—Screw, Steel, attaching Stationary Knife to Cast Lower Bar	.03
‡No. 343—Bolt for Malleable Roller Brackets	.08
‡No. 352—Adjusting Screw for No. K Lower Bar	.05
‡No. 353—Hexagon Head Steel Screw fastening Lower Bar to Frame	.05
‡No. 354—Screw, for Wheel Washer No. 355, Steel	.04
‡No. 355—Washer for Wheel No. LT3, Steel	.05
‡No. 356—Screw for No. K7 and K8 Shields, Steel	.03
‡No. 370—Wood Roller, All Sizes (Give Cutting Width of Mower)	.50
‡Steel Balls, 5/16 Inch Diameter	.03

Give Cutting Width of Mower.

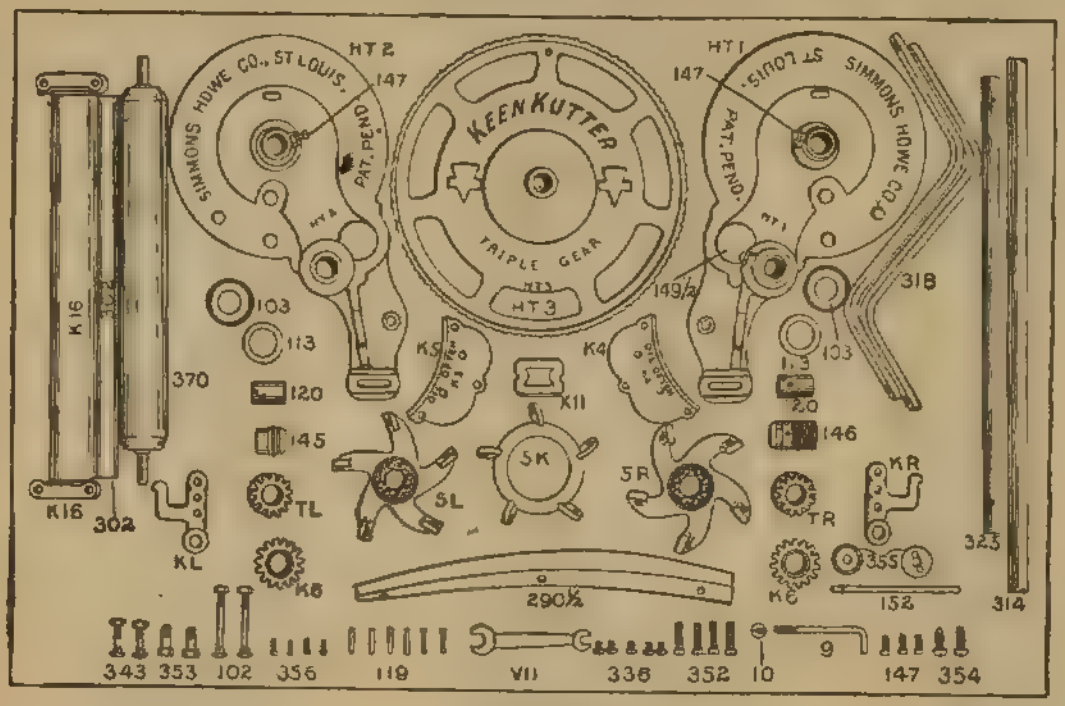
Packed Loose.

DIRECTIONS FOR ORDERING PARTS

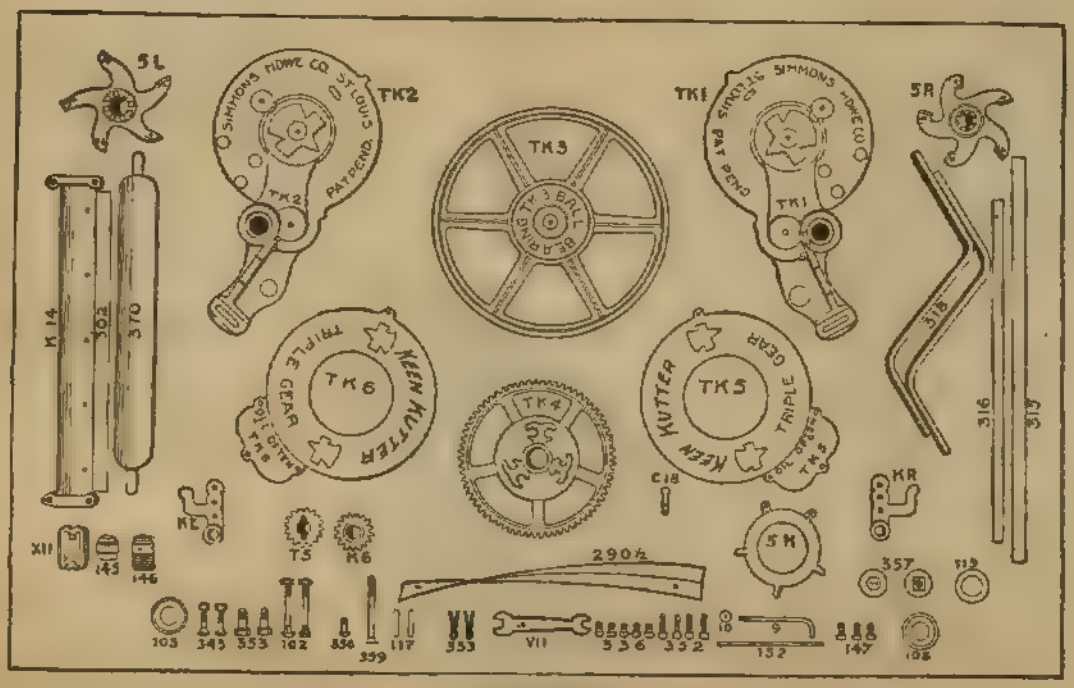
In ordering Parts always give the Number and Name of Part Wanted. Extra Parts can be sent by mail or express at slight cost.

‡Goods marked thus (‡) are not carried in stock and can only be furnished by shipment direct from factory

‡EXTRA PARTS FOR KEEN KUTTER* TRIPLE GEAR HIGH WHEEL BALL BEARING LAWN MOWERS.



1906 MODEL.



1907 MODEL.

‡EXTRA PARTS FOR LAWN MOWERS.

KEEN KUTTER* Triple Gear, High Wheel Ball Bearing Lawn Mowers.

For Illustrations See Page 550.

	Each
‡No. HT1—Right Frame, Cast Iron, 1906 Model	$1.25
‡No. TK1—Right Frame, Cast Iron, 1907 Model	1.25
‡No. HT2—Left Frame, Cast Iron, 1906 Model	1.25
‡No. TK2—Left Frame, Cast Iron, 1907 Model	1.25
‡No. HT3—Drive Wheel, both alike, Cast Iron, 1906 Model	1.00
‡No. TK3—Drive Wheel, both alike, Cast Iron, 1907 Model	1.00
‡No. K4 —Right Gear Shield, Cast Iron, 1906 Model	.20
‡No. K5 —Left Gear Shield, Cast Iron, 1906 Model	.20
‡No. TK5—Right Gear Shield, Cast Iron, 1907 Model	.70
‡No. TK6—Left Gear Shield, Cast Iron, 1907 Model	.70
‡No. TR —Right Hand Pinion, Cast Iron, 1906 Model	.25
‡No. TL —Left Hand Pinion, Cast Iron, 1906 Model	.25
‡No. T5 —Pinion on Reel Shaft, both alike, 1907 Model	.25
‡No. K6 —Intermediate Pinion, both alike, 1907 Model	.25
‡No. C18—Pawl, both alike, 1907 Model	.05
‡No. KR —Right Hand Roller Bracket, Malleable	.20
‡No. KL —Left Hand Roller Bracket, Malleable	.20
‡No. 5R —Right Hand Reel Spider, for 5 Knife Spiral Cutter	.80
‡No. 5L —Left Hand Reel Spider, for 5 Knife Spiral Cutter	.80
‡No. 5K —Center Spider, for 5 Knife Spiral Cutter	.30
‡No. V11—Wrench, Malleable	.15
‡No. X11—Collar for Handle, Malleable	.10

Lower Bar, Cast Iron.

Nos.	‡K10	‡K12	‡K14	‡K16
Length, inches	10	12	14	16
Each	$1.00	1.10	1.20	1.30
Nos.	‡K18	‡K20	‡K22	‡K24
Length, inches	18	20	22	24
Each	$1.40	1.50	1.60	1.70

	Each
‡No 9—Handle Hook, Cast Iron	$0.10
‡No. 10—Handle Hook Nut	.03
‡No. 102—Bolt for Handle Brace	.08
‡No. 103—Ball Case, Steel	.35
‡No. 113—Ball Retainer, Steel	.10
‡No. 117—Pin Holding Pinion, No. T5 on Reel Shaft, 1907 Model	.05
‡No. 119—Pawl for Cast Pinions Nos. TR and TL, 1906 Model	.05
‡No. 120 —Bushing for Cast Pinions Nos. TR and TL, 1906 Model	.20
‡No. 145 —Left Hand Ball Bearing Cone, Steel	.20
‡No. 146 —Right Hand Ball Bearing Cone, Steel	.50
‡No. 147 —Set Screw, Steel, for holding Frame to Axle and Spider to Reel Shaft	$0.05
‡No. 149½—Set Screw, Steel, under Steel Cone No. 146	.05
‡No. 152 —Pin Adjusting Cone No. 146 and Turning Wheel No. HT3	.05

Reel Complete, 5 Blades.

Nos.	‡240	‡241	‡242	‡243
Size, inches	10	12	14	16
Each	$3.75	4.50	5.25	6.00
Nos.	‡244	‡245	‡246	‡247
Size, inches	18	20	22	24
Each	$6.75	7.50	8.25	9.00

	Each
‡No. 290½—Spiral Cutter Blade, Steel, All Sizes (Give Cutting Width of Mower)	.80
‡No 300 —Wood Handle (without Braces)	.75
‡No 302 —Lower Blade, Steel (Stationary Knife), All Sizes (Give Cutting Width of Mower)	1.00
‡No. 314 —Front Axle, Steel, All Sizes, 1906 Model (Give Cutting Width of Mower)	.75
‡No. 315 —Front Tie Rod, Steel, All Sizes, 1907 Model (Give Cutting Width of Mower)	.75
‡No. 316 —Reel Shaft, Steel, All Sizes, 1907 Model (Give Cutting Width of Mower)	.75
‡No. 318 —Handle Brace, Wrought, All Sizes, (Give Cutting Width of Mower)	.40
‡No. 325 —Reel Shaft, Steel, All Sizes, 1906 Model (Give Cutting Width of Mower)	.75
‡No. 333 —Cotter Pin, Steel, 1907 Model	.03
‡No. 336 —Screw, Steel, attaching Stationary Knife to Lower Bar	.03
‡No. 343 —Bolt for Malleable Roller Brackets	.08
‡No. 352 —Adjusting Screw for No. K Lower Bar	.05
‡No. 353 —Hexagon Head Steel Screw fastening Lower Bar to Frame	.05
‡No. 354 —Screw for Wheel Washer No. 355, Steel, 1906 Model	.04
‡No. 355 —Washer for Wheel No. HT3, Steel, 1906 Model	.05
‡No. 356 —Screw for Nos. K4, K5, TK5 and TK6 Shields, Steel	.03
‡No. 357 —Washer for Wheel No. TK3, Steel, 1907 Model	.05
‡No. 358 —Screw fastening Wheel No. TK3 on Axle, Steel, 1907 Model	.05
‡No. 370 —Wood Roller, All Sizes (Give Cutting Width of Mower)	.50
‡Steel Balls, 5/16 inch Diameter	.03

Packed Loose.

DIRECTIONS FOR ORDERING PARTS.

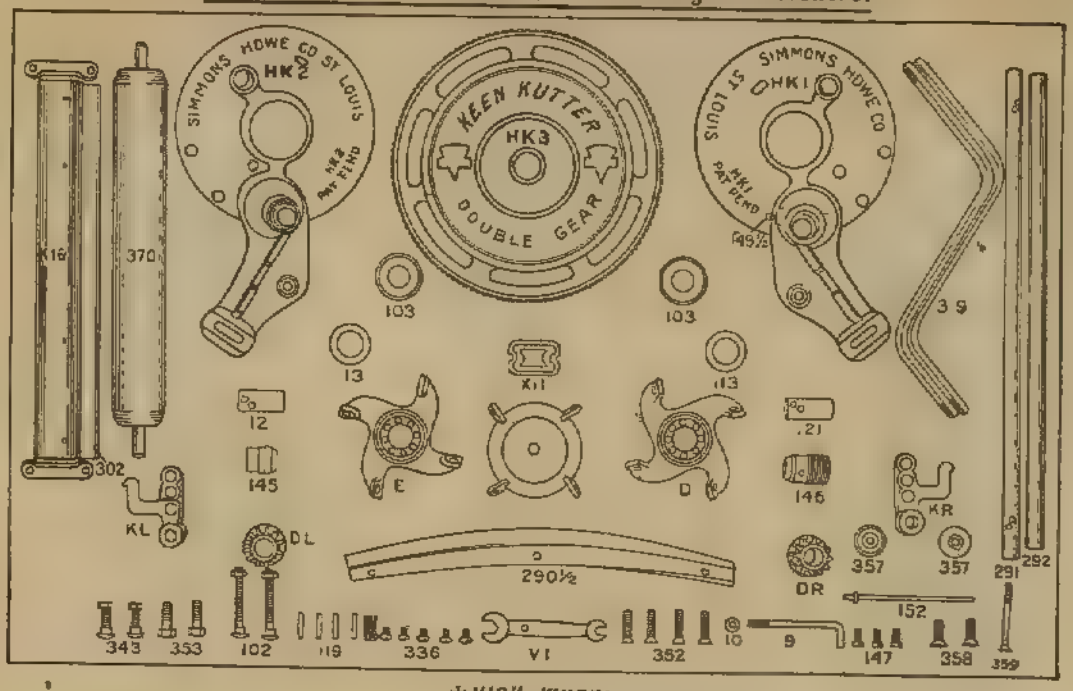
In ordering Parts always give the Number and Name of Part wanted. Extra Parts can be sent by Mail or Express at a slight cost.

‡Goods marked thus (‡) are not carried in stock and can only be furnished by shipment direct from factory.

TRADE MARK:
B. C. SIMMONS' *KEEN KUTTER*,
REGISTERED.

‡EXTRA PARTS FOR LAWN MOWERS.

KEEN KUTTER®, Double Gear, Ball Bearing Lawn Mowers.



‡HIGH WHEEL.

	Each.
‡No. HD1—Right Frame, 1906 Model, Cast Iron	$1.25
‡No. HD2—Left Frame, 1906 Model, Cast Iron	1.25
‡No. HK1—Cast Iron Right Frame, 1907 Model	1.25
‡No. HK2—Cast Iron Left Frame, 1907 Model	1.25
‡No. HD3—Drive Wheel, 1906 Model, Cast Iron, both alike	1.00
‡No. HK3—Drive Wheel, 1907 Model, Cast Iron, both alike	1.00
‡No. DR—Right Hand Pinion, Cast Iron	.25
‡No. DL—Left Hand Pinion, Cast Iron	.25
‡No. KR—Right Hand Roller Bracket, Malleable	.20
‡No. KL—Left Hand Roller Bracket, Malleable	.20
‡No. D—Right Hand Reel Spider for 4 Knife Spiral Cutter, 1906 Model,	.80
‡No. E—Left Hand Reel Spider for 4 Knife Spiral Cutter, 1906 Model,	.80
‡No. P—Right Hand Reel Spider for 5 Knife Spiral Cutter, 1906 Model,	.80
‡No. Q—Left Hand Reel Spider for 5 Knife Spiral Cutter, 1906 Model,	.80
‡No. O—Center Spider for 4 Knife Spiral Cutter, 1906 Model	.30
‡No. G—Center Spider for 5 Knife Spiral Cutter, 1906 Model	.30
‡No. V11—Wrench, Malleable	.15
‡No. X11—Cotter for Handle, Malleable	.10

Lower Bar, Cast Iron

Nos.	‡K10	‡K12	‡K14	‡K16	‡K18	‡K20	‡K22	‡K24
Cutter Bar, Inches	10	12	14	16	18	20	22	24
Each	$1.06	1.10	1.20	1.30	1.40	1.50	1.60	1.70

	Each.
‡No. 9—Handle Hook, Cast Iron	$0.10
‡No. 10—Handle Hook Nut	.03
‡No. 102—Bolt for Handle Brace	.08
‡No. 103—Ball Case, Steel	.35
‡No. 113—Ball Retainer, Steel	.10
‡No. 119—Pawl for Cast Pinions Nos. DR and DL, Steel	.05
‡No. 121—Bushing for Cast Pinions Nos. DR and DL, Steel	.20
‡No. 145—Left Hand Steel Ball Bearing Cone	20
‡No. 146—Right Hand Steel Ball Bearing Cone	50
‡No. 147—Set Screw, Steel for holding Frame to Axle and Solder to Cast Reel Shaft	.05
‡No. 149½—Set Screw, Steel, under Steel Cone No. 146	.05
‡No. 152—Pin Adjusting Cone No. 146 and Turning Wheel No. HD3	.05

Reel Complete, 4 Blades, 1906 Model

Nos.	‡260	‡261	‡262	‡263	‡264	‡265	‡266	‡267
Size, inches	10	12	14	16	18	20	22	24
Each	$2.75	3.50	4.25	5.00	5.75	6.50	7.25	8.00

Reel Complete, 5 Blades, 1907 Model.

Nos.	‡270	‡271	‡272	‡273	‡274	‡275	‡276	‡277
Size, Inches	10	12	14	16	18	20	22	24
Each	$4.00	4.75	5.50	6.25	7.00	7.75	8.50	9.25

	Each.
‡No. 290½—Spiral Cutter Blade, Steel, all Sizes, 1906 Model	$0.80
‡No. 301—Spiral Cutter Blade, Steel, all Sizes, 1907 Model	Give Cutting Width of Mower .75
‡No. 291—Reel Shaft, Steel, all Sizes	.75
‡No. 292—Front Tie Rod, Steel, all Sizes	.75
‡No. 300—Wood Handle (Without Braces)	.75
‡No. 302—Lower Blade (Stationary Knife,) Steel, All Sizes, (Give Cutting Width of Mower)	1.00
‡No. 319—Handle Brace, Wrought, All Sizes, (Give Cutting Width of Mower	.40
‡No. 336—Screw, Steel, attaching Stationary Knife to Cast Lower Bar,	.03
‡No. 343—Bolt for Malleable Roller Brake	.08
‡No. 372—Adjusting Screw for No. K Lower Bar	.05
‡No. 353—Hexagon Head Screw, Steel, fastening Cast Lower Bar to Frame	.05
‡No. 357—Washer for Wheel No. HD3, Steel	.50
‡No. 358—Screw for Wheel Washer No. 357, Steel	.04
‡No. 359—Steel Bolt, (Without Nut), to fasten on Wheel No. HK3 1907 Model	.10
‡No. 370—Wood Roller, All Sizes, Give Cutting Width of Mower	.50
‡Steel Balls 5/16 Inch Diameter	.03

Packed Loose.

DIRECTION FOR ORDERING PARTS.

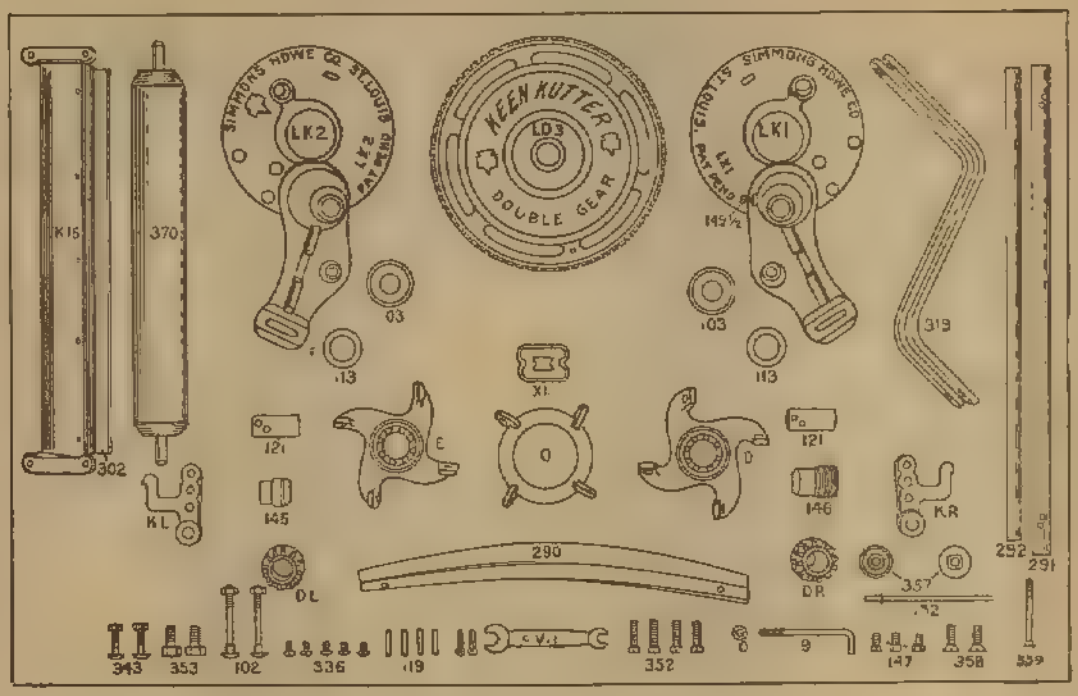
In Ordering Parts always give the Number and Name of Part Wanted. Extra Parts can be sent by Mail or Express at slight cost.

‡Goods marked thus (‡) are not carried in stock and can only be furnished by shipment direct from factory.

TRADE MARK
E. C. SIMMONS' KEEN KUTTER
REGISTERED

‡EXTRA PARTS FOR LAWN MOWERS.

KEEN KUTTER* Double Gear, Ball Bearing Lawn Mowers.



‡LOW WHEEL.

	Each
‡No. LD1—Right Frame, 1906 Model, Cast Iron	$1 25
‡No. LD2—Left Frame, 1906 Model, Cast Iron	1 25
‡No. LK1—Right Frame, 1907 Model Cast Iron	1 25
‡No. LK2—Left Frame, 1907 Model, Cast Iron	1 25
‡No. LD3—Drive Wheel, Cast Iron, Both Alike	1 00
‡No. DR—Right Hand Pinion, Cast Iron	25
‡No. DL—Left Hand Pinion, Cast Iron	25
‡No. KR—Right Hand Roller Bracket, Malleable	20
‡No. KL—Left Hand Roller Bracket, Malleable	20
‡No. D—Right Reel Spider, for 4 Knife Spiral Cutter	30
‡No. E—Left Reel Spider, for 4 Knife Spiral Cutter	30
‡No. 5R—Right Reel Spider, for 5 Knife Spiral Cutter	30
‡No. 5L—Left Reel Spider, for 5 Knife Spiral Cutter	30
‡No. O—Center Spider, for 4 Knife Spiral Cutter	30
‡No. 5X—Center Spider, for 5 Knife Spiral Cutter	30
‡No. V11—Wrench, Malleable	15
‡No. X11—Collar for Handle, Malleable	10

Lower Bar Cast Iron

No.	‡K10	‡K12	‡K14	‡K16	‡K18	‡K20	‡K22	‡K24
Cutter Bar, inches	10	12	14	16	18	20	22	24
Each	$1 08	1.10	1.20	1.30	1.40	1 50	1 60	1 70

	Each
‡No. 9—Handle Hook, Cast Iron	$0 10
‡No. 10—Handle Hook Nut	03
‡No. 102—Bolt to Handle Brace	08
‡No. 103—Ball Cone, Steel	35
‡No. 113—Ball Retainer, Steel	10
‡No. 119—Pawl for Cast Pinions Nos. DR and DL, Steel	05
‡No. 120—Bushing for Cast Pinions Nos. DR and DL, Steel	.30
‡No. 145—Left Hand Ball Bearing Cone, Steel	.20

	Each
‡No. 146—Right Hand Ball Bearing Cone, Steel	50
‡No. 147—Set Screw, Steel, for holding Frame to Axle and Spider to Reel Shaft	$0 05
‡No. 149½—Set Screw, Steel, under Steel Cone No. 146	05
‡No. 152—Pin Adjusting Cone No. 146 and Turning Wheel No. LD2	05
‡No. 290—Spiral Cutter Blade, Steel, All Sizes (Give Cutting Width of Mower)	80
‡No. 291—Reel Shaft, Steel, All Sizes (Give Cutting Width of Mower)	.75
‡No. 293—Front Tie Rod, Steel, All Sizes (Give Cutting Width of Mower)	75
‡No. 300—Wood Handle, (without Braces)	75
‡No. 302—Lower Bar, Steel (Stationary Knife), All Sizes, (Give Cutting Width of Mower)	1 00
‡No. 319—Handle Brace, Wrought, All Sizes (Give Cutting Width of Mower)	40
‡No. 336—Screw, Steel, attaching Stationary Knife to Cast Lower Bar	.02
‡No. 343—Bolt for Malleable Roller Brackets	08
‡No. 352—Adjusting Screw for No. K Cast Lower Bar	05
‡No. 353—Hexagon Head Steel Screw fastening Cast Lower Bar to Frame	35
‡No. 357—Washer for Wheel No. LD3, Steel	04
‡No. 358—Screw for Wheel Washer No. 357, Steel, 1906 Model	.04
‡No. 359—Steel Bolt, (without Nut), to fasten on Wheel No. LK2, 1907 Model	.10

Reel Complete, 4 Blades.

No.	‡360	‡361	‡362	‡363	‡364	‡365	‡366	‡367
Size, inches	10	12	14	16	18	20	22	24
Each	$2.75	3.50	4.25	5.00	5.75	6.50	7.25	8.00

5 Bladed Reel $1.00 more than these prices.

	Each.
‡No. 370—Wood Roller, All Sizes, (Give Cutting Width of Mower)	$0.50
‡Steel Balls, 3/16 inch Diameter	03

Packed Loose.

DIRECTION FOR ORDERING PARTS.

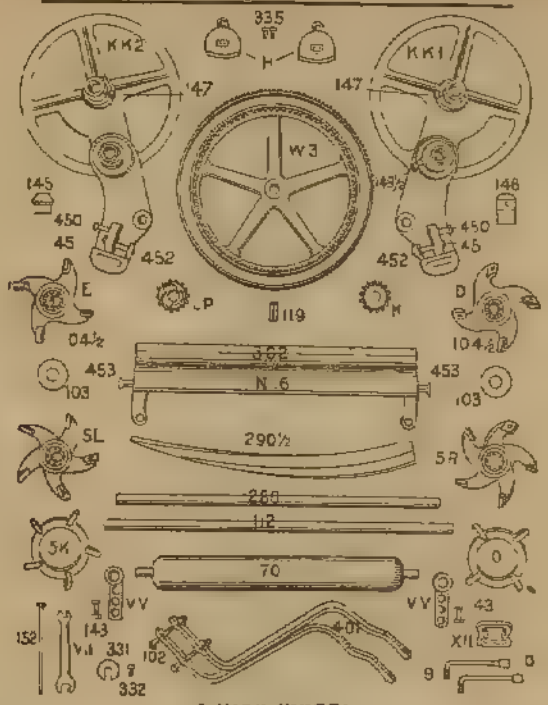
In ordering Parts always give the Number and Name of Parts wanted. Extra Parts can be sent by Mail or Express at a slight cost.

‡Goods marked thus (‡) are not carried in stock and can only be furnished by shipment direct from factory.

TRADE MARK "KEEN KLIPPER," REGISTERED.

‡PRICE LIST AND DESCRIPTION OF EXTRA PARTS FOR

Keen Klipper* High Wheel Lawn Mowers.



‡HIGH WHEEL.

	Each
‡No. D —Right Hand Spider for 4 Knife Spiral Cutter	$0.80
‡No. E —Left Hand Spider for 4 Knife Spiral Cutter	.80
‡No. O —Center Spider for 4 Knife Spiral Cutter	.30
‡No. 5R —Right Hand Spider for 5 Knife Spiral Cutter	.80
‡No. 5L —Left Hand Spider for 5 Knife Spiral Cutter	.80
‡No. 5K —Center Spider for 5 Knife Spiral Cutter	.30
‡No. H —Cast Gear Cover	.25
‡No. K —Right Hand Pinion, Cast	.25
‡No. LP —Left Hand Pinion, Cast	.25
‡No. KK1—Right Hand Frame, Cast	1.25
‡No. KK2 Left Hand Frame, Cast	1.25
‡No. W3—Drive Wheel, Cast, Both Alike	1.00
‡No. 9 —Handle Hook, Wrought	.10
‡No. 10 —Nut for Handle Hook	.03
‡No. VII —Wrench, Malleable	.15
‡No. VV —Roller Bracket, Malleable, Both Alike	.20
‡No. XII —Collar for Handle, Malleable	.10

Cutter Bar, Cast.

Nos...	‡N10	‡N12	‡N14	‡N16	‡N18	‡N20	‡N22	‡N24
Cutter Bar, inches...	10	12	14	16	18	20	22	24
Each.....	$1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70

	Each
‡No. 102 Bolt for Handle Brace	$0.08
‡No. 103 -Ball Case, Steel, for Ball Bearing	.35
‡No. 104½—Ball Retainer, Steel, for Ball Bearings	.10
‡No. 112—Front Axle, Steel, All Sizes, (Give Cutting Width of Mower)	.75
‡No. 119—Pawl for Cast Pinions Nos. LP and L, Steel	.05
‡No. 143—Bolt for Roller Brackets No. VV	.08
‡No. 145—Left Hand Steel Ball Bearing Cone	.20
‡No. 146—Right Hand Steel Ball Bearing Cone, for Frames Nos. KK1 and KK2	$0.50
‡No. 147—Set Screw, Steel, for holding Frame to Axle	.05
‡No. 147½—Set Screw, Steel, for holding Spider to Reel Shaft	.05
‡No. 149½—Set Screw, Steel, under No. 146 Steel Cone	.05
‡No. 152 —Pin Operating Screw Cone, and Drive Wheel, Steel	.05
‡No. 170—Wood Roller, All Sizes	.50
‡No 280 Reel Shaft, Steel, All Sizes	.75
‡No. 290½—Spiral Cutter Blade, Steel, All Sizes	.80
‡No. 302—Stationary Knife, Steel, All Sizes	1.00
‡No. 322 Wood Handle (Without Braces	.75
‡No. 331 Split Steel Washer, for No. W3 Drive Wheel	.10
‡No. 332—Screw, Steel, for Wheel Washer No. 331	.03
‡No. 335 Screw, Steel, for No. H Gear Cover	.03
‡No. 380 10 inch.	2.75
‡No. 381—12 inch.	3.50
‡No. 382—14 inch.	4.25
‡No. 383—16 inch.	5.00
‡No. 384—18 inch.	5.75
‡No. 385 -20 inch.	6.50
‡No. 386 22 inch.	7.25
‡No. 387 -24 inch.	8.00
‡No. 401—Handle Brace, Wrought, All Sizes (Give Cutting Width of Mower)	.40
‡No. 450—Front Adjusting Screw, Steel, threaded to Head, for No. N Cutter Bar	.05
‡No. 451—Back Adjusting Screw, Steel, threaded half-way to Head, for No. N Cutter Bar	.05
‡No. 452—Square Nut, for No. 451 Screw	.03
‡No. 453—Flat Head Screw, Steel, for fastening Cutter Bar to Frame	.05
‡Steel Balls, 5/16 inch Diameter	.30

Give Cutting Width of Mower

Spiral Cutter (Malleable Spiders and 4 Spiral Steel Blades) complete.

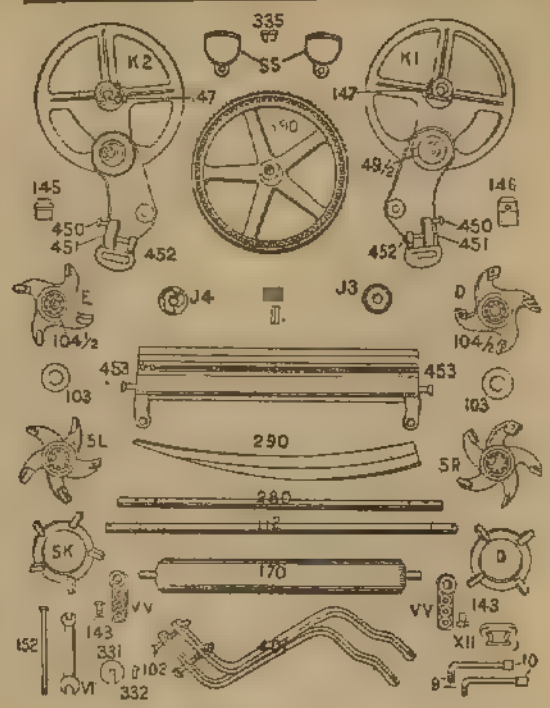
For Spiral Cutter, (Malleable Spiders and Five Spiral Steel Blades) add $1.00 to price of 4 Blades.

‡Goods marked thus (‡) are not carried in stock and can only be furnished by shipment direct from factory.

TRADE MARK "KEEN KLIPPER," REGISTERED

‡PRICE LIST AND DESCRIPTION OF EXTRA PARTS FOR

Keen Klipper* Low Wheel Lawn Mowers.



‡LOW WHEEL.

	Each
‡No. D —Right Hand Spider, for 4 Knife Spiral Cutter	$0.80
‡No. E —Left Hand Spider, for 4 Knife Spiral Cutter	.80
‡No. O —Center Spider, for 4 Knife Spiral Cutter	.30
‡No 5R Right Hand Spider, for 5 Knife Spiral Cutter	.80
‡No. 5L —Left Hand Spider, for 5 Knife Spiral Cutter	.80
‡No. 5K —Center Spider, for 5 Knife Spiral Cutter	.30
‡No. J3 —Right Hand Pinion, Cast	.25
‡No. J4 Left Hand Pinion, Cast	.25
‡No. SS Gear Cover, Cast	.25
‡No. K1 Right Frame, Cast	1.25
‡No. K2 —Left Frame, Cast	1.25
‡No. VII Wrench, Malleable	.15
‡No VV —Roller Bracket, Malleable, Both Alike	20
‡No XII —Collar for Handle, Malleable	10
‡No. 9 —Handle Hook, Malleable	.10
‡No. 10 —Handle Hook Nut	.03

Cutter Bar, Cast.

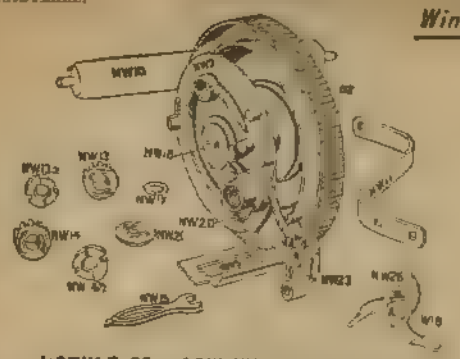
Nos.	‡N10	‡N12	‡N14	‡N16	‡N18	‡N20	‡N22	‡N24
Cutter Bar, inches	10	12	14	16	18	20	22	24
Each	$1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70

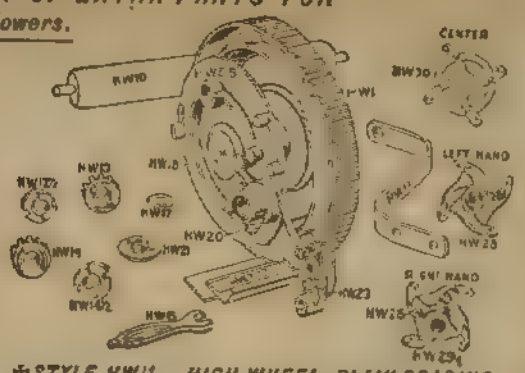
	Each
‡No. S,90—Drive Wheel, Cast, Both Alike	$1.00
‡No. 102 Bolt for Handle Brace	.08
‡No. 103 Ball Case, Steel, for Ball Bearings	.35
‡No. 104½—Ball Retainer, Steel, for Ball Bearings	.10
‡No. 112—Front Axle, Steel, All Sizes, (Give Cutting Width of Mower)	.75
‡No. 119 —Pawl for Steel Pinions, Nos. J3 and J4	.05
‡No. 143 —Bolt for Roller Bracket No. VV	.08
‡No. 145—Left Hand Ball Bearing Cone, Steel	.20
‡No. 146—Right Hand Ball Bearing Cone, Steel, for Frames Nos. K1 and K2	$0.50
‡No. 147—Set Screw, Steel, for holding Frame to Axle	.05
‡No. 147½—Set Screw, for Holding Spider to Reel Shaft	.05
‡No. 149½—Set Screw, Steel, under No. 146 Steel Cone.	.05
‡No 152—Pin Operating Screw Cone and Drive Wheel, Steel	.05
‡No. 170 —Wood Roller, All Sizes (Give Cutting Width of Mower)	.50
‡No. 280—Reel Shaft, Steel, All Sizes (Give Cutting Width of Mower)	.75
‡No 290—Spiral Cutter Blades, Steel, All Sizes (Give Cutting Width of Mower)	.80
‡No 302—Stationary Knife, Steel, All Sizes (Give Cutting Width of Mower)	1.00
‡No. 322 Wood Handle (Without Braces)	.75
‡No. 331 Split Steel Washer, for No. S/90 Drive Wheel	.10
‡No. 332 Screw, Steel, for Wheel Washer No. 331	.03
‡No. 335—Screw, Steel, for No. SS Gear Cover	03
‡No 380—10 inch. Spiral Cutters (Malleable Spiders and Four Spiral Steel Blades) complete.	2.75
‡No. 381 12 inch.	3.50
‡No. 382 14 inch.	4.25
‡No. 383—16 inch.	5.00
‡No. 384—18 inch. For Spiral Cutters (Malleable Spiders and Five Spiral Steel Blades) add $1.00 to price of Four Blades.	5.75
‡No. 385—20 inch.	6.50
‡No. 386—22 inch.	7.25
‡No 387 24 inch.	8.00
‡No. 401—Handle Braces, Wrought, All Sizes (Give Cutting Width of Mower)	.40
‡No. 450—Front Adjusting Screw, Steel, threaded to head, for No. N Cutter Bar	.05
‡No. 451—Back Adjusting Screw, Steel, threaded half-way to head, for No. N Cutter Bar	.05
‡No. 452—Square Nut, for No. 451 Screw	.03
‡No. 453—Flat Head Screw, Steel, for fastening Lower Bar to Frame	.05
‡Steel Balls, 5/16 inch Diameter	.03

‡Goods marked thus (‡) are not carried in stock and can only be furnished by shipment direct from factory.

TRADE MARK: "WINNER," REGISTERED.

‡PRICE LIST AND DESCRIPTION OF EXTRA PARTS FOR Winner* Lawn Mowers.





‡STYLE 02. LOW WHEEL, PLAIN BEARING.

	Each
‡No. 02 —Drive Wheel, Cast Iron, Both Alike	$0.85
‡No. W 2 —Phosphor Bronze Journal Bearings, Both Alike	.30
‡No. NW 4 —Roller Bracket, Malleable, Both Alike	.15
‡No NW 3 -Right Hand Side Plate, Cast	1.25
‡No NW 2 Left Hand Side Plate, Cast	1.25

‡No. 1895 —Straight Steel Knife and Cast Bar.

Inches	10	12	14	16	18
Each	$1 00	1.20	1.30	1.40	1.50

‡No NW 8 —Spiral Cutter (Malleable Spiders, and Three Spiral Steel Blades) complete.

Inches	10	12	14	16	18
Each	$3 25	3.75	4.75	5.25	5.75

‡No. NW 9 —Spiral Cutter Blades, Steel.

Inches	10	12	14	16	18
Each	$0 40	.50	.55	.60	.65

‡No. NW 10—Wood Roller.

Inches	10	12	14	16	18
Each	$0.35	.45	.55	.65	.75

‡No. NW 11 Handle Irons, Wrought, Both Alike.

Inches	10	12	14	16	18
Each	$0.30	.36	.35	.35	.40

	Each
‡No NW 13—Left Hand Pinion, Cast	$0 30
‡No NW 14 Right Hand Pinion, Cast	.30
‡No NW 13½—Right Hand Ratchet Clutch, Cast	.15
‡No NW 14½—Left Hand Ratchet Clutch Cast	.15
‡No NW 15 -Wrench, Malleable	.05
‡No NW 16 Spiral Cutter Spider, Malleable, (state if for center or which end)	50
‡No NW 17 -Grinding Wire, Steel	.02
‡No NW 18 Drive Wheel Bolt	.10
‡No. NW 19 Cotter, Steel, for end of Cutter Shaft	.05
‡No NW 20—Set Screw for Nut and Journal Box	.08
‡No NW 21—Drive Wheel Washer, Steel	.05
‡No NW 23—Roller Bracket Bolt	.08
‡No NW 24 Bolt for Handle Iron	.08
‡No. NW 26—Set Screws, Steel, for Spider	.10
‡No NW 49 Pin, Steel, for Ratchet Clutch	.05
‡No NW 50—Wood Handle, complete	1.00

‡STYLE HW11. HIGH WHEEL, PLAIN BEARING.

	Each
‡No. HW1 —Drive Wheel, Cast, Both Alike	$1.00
‡No. HW 2—Phosphor Bronze Journal Bearings, Both Alike	.50
‡No HW 4 Roller Bracket, Malleable, Both Alike	.15
‡No. HW 55 Right Hand Side Plate Cast	1.50
‡No. HW 66—Left Hand Side Plate, Cast	1.50

‡No HW7 —Straight Steel Knife and Cast Bar.

Inches	14	16	18	20
Each	$1.55	1 70	2 00	2 25

‡No. HW 8 —Spiral Cutter (Spiders, Malleable, and Four Spiral Blades, Steel) complete

Inches	14	16	18	20
Each	$5.50	6.00	6.50	7.00

‡No HW 9—Spiral Cutter Blades, Steel.

Inches	14	16	18	20
Each	$0.55	.60	.66	.70

‡No HW 10—Wood Roller.

Inches	14	16	18	20
Each	$0.55	.65	.75	.80

‡No. HW 11—Handle Irons, Wrought, Both Alike.

Inches	14	16	18	20
Each	$0.35	.35	.40	.45

	Each
‡No HW 13—Right Hand Pinion, Cast	$0 50
‡No HW 13—Left Hand Pinion, Cast	.50
‡No HW 13½—Right Hand Ratchet Clutch, Cast	.25
‡No HW 14 Left Hand Ratchet Clutch Cast	.25
‡No. HW 15—Wrench, Malleable	.05
‡No HW 17 Grinding Wire, Steel	.02
‡No HW 18—Drive Wheel Bolt	10
‡No HW 19 Cotter, Steel, for end of Cutter Shaft	05
‡No HW 20—Set Screw, Steel, and Nut for Journal Box	.08
‡No HW 21 Drive Wheel Washer, Steel	.05
‡No HW 22 Set Screw for Front Cross Bar	.08
‡No. HW 23 Roller Bracket Bow	.10
‡No. HW 24 Bolt for Handle Iron	.08
‡No. HW 25—Bolt for Straight Knife Bar	.08
‡No. HW 26—Set Screw, Steel, for Spider	.10
‡No HW 28 Left Hand Spider, Malleable	50
‡No. HW 29—Right Hand Spider, Malleable	.50
‡No HW 30 Center Spider, Malleable	.25
‡No HW 49—Pin Steel for Ratchet Clutch	05
‡No. HW 50—Wood Handle, complete	1 00

DIRECTIONS FOR ORDERING PARTS.

In ordering Parts always give the Number and Name of the Part wanted, the width of Cut of Machine, and the Year in which it was Made, or the Style Number (the Width is cast in raised figures on the Knife Bar On Mowers made prior to 1898 the Year and Date of Manufacture is cast on the Side Plate; On those made in 1898 and Later the Style Number, which takes the place of the Year Date, is cast on the Drive Wheel. Do not give Patent Dates, these will not Identify the Mower). Most of these Parts Weigh less than 4 lbs. and can be sent by mail or express at sight cost.

‡Goods marked thus (‡) are not carried in stock, and can only be furnished by shipment direct from factory.

PLANES.

STANLEY'S BED ROCK, IRON.

The perfected design of this Plane allows a combination of the utmost solidity, with more adjustments than any Bench Plane ever produced.

Both surfaces of the Frog are machined, and the bottom surface is in contact with the machined surface of the Plane body, thus giving the Cutting Iron as solid a bed as though resting on the Plane body itself.

A Tongue is made on the bottom side of the Frog, and a corresponding groove is formed in the Plane body, overcoming any possibility of shifting or "wobbling" of the Frog.

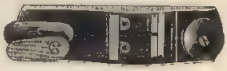
When it is desired to open or close the mouth, it can be easily done by turning the screw shown at the back of the Frog. The Tongue and groove mentioned insures that the Frog moves at a true right angle with the mouth.

FLAT BOTTOM.

			Each
No. 602.	Smooth,	7 in. in Length, 1⅝ in. Cutter....	$2.15
No. 603.	Smooth,	8 in. in Length, 1¾ in. Cutter.. .	2.30
No. 604.	Smooth,	9 in. in Length, 2 in. Cutter....	2.50
No. 604½.	Smooth,	10 in. in Length, 2⅜ in. Cutter....	2.90
No. 605.	Jack,	14 in. in Length, 2 in. Cutter..	$2.90
No. 605½.	Jack,	15 in. in Length, 2¼ in. Cutter..	3.25
No. 606.	Fore,	18 in. in Length, 2⅜ in. Cutter..	3.50
No. 607.	Jointer,	22 in. in Length, 2⅜ in. Cutter..	4.20
No. 608.	Jointer,	24 in. in Length, 2⅝ in. Cutter..	5.00

CORRUGATED BOTTOM.

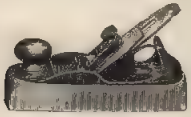
Sectional View Side.


Sectional View.

Showing Corrugated Bottom.

			Each
No. 602C.	Smooth,	7 in. in Length, 1⅝ in. Cutter..	$2.15
No. 603C.	Smooth,	8 in in Length, 1¾ in. Cutter .	2.30
No. 604C.	Smooth,	9 in in Length, 2 in. Cutter..	2.50
No. 604½C.	Smooth,	10 in. in Length, 2⅜ in. Cutter..	2.90
No. 605C.	Jack,	14 in. in Length, 2 in. Cutter	$2.90
No. 605½C.	Jack,	15 in. in Length, 2¼ in. Cutter	3.25
No. 606C.	Fore,	18 in. in Length, 2⅜ in. Cutter	3.50
No. 607C.	Jointer,	22 in. in Length, 2⅜ in Cutter	4.20
No. 608C.	Jointer,	24 in. in Length, 2⅝ in. Cutter	5.00

STANLEY'S ADJUSTABLE WOOD.



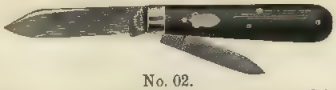
			Each
No. 122.	Smooth,	8 in. in Length, 1¾ in. Cutter... ...	$1.00
No. 135.	Handle Smooth,	10 in. Length, 2⅛ in. Cutter	$1.35

			Each
No. 127.	Jack,	15 in. in Length, 2⅛ in. Cutter.....	$1.85
No. 129.	Fore,	20 in. in Length, 2⅜ in. Cutter.....	1.50
No. 132.	Jointer,	26 in. in Length, 2⅝ in Cutter.....	1.70

All above, one in a box.

POCKET KNIVES.

WEDGEWAY. FULLY WARRANTED.



No. 02.

No. **01**, 2 Blades, Red Wood Handle, Iron Lined, Iron Bolster and Shield, Clip Blade, Glazed, Per dozen, $4 00
" **02**, 2 " " " " " " " " " Spear " " " 4 00
" **03**, 2 " Ebony " " " " " " " Clip " " " 4 00
" **04**, 2 " " " " " " " " " Spear " " " 4 00

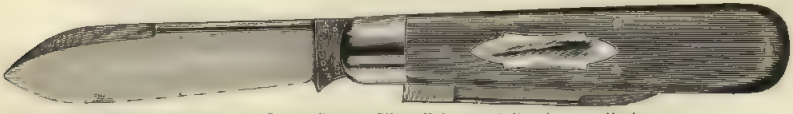
No. **0165**, 1 Blade, Red Wood, Steel Lined, Steel Bolster, German Silver, Shield, Sheep's Foot Blade, Polished, Per doz., $4 00

No. 08.

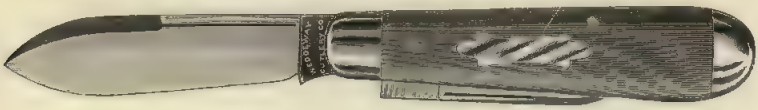
No. **08**, 2 Blades, Redwood Handle, Brass Lined, Spear Blade, Polished, - - Per dozen, $9 00
" **045**, 2 " Ebony, " " " " " " - - " 9 00

No. 09.

No. **09**, 2 Blades, Ebony Handle, Brass Lined, German Silver Bolster and Shield, Spear Blade, Polished, - - - - - - Per dozen, $12 00
" **0121**, 2 Blades, Ebony Handle, Brass Lined, German Silver Bolster and Shield, Clip Blade, Polished, - - - - - - " 12 00



No. **010**, 2 Blades, Ebony Handle, Brass Lined, German Silver Bolster and Shield, Spear Blade, Polished, - - - - - - Per dozen, $9 00



No. 041.

No. **011**, 2 Blades, Redwood Handle, Brass Lined, German Silver Bolster Cap and Shield, Spear Blade, Polished, - - - - - Per dozen, $9 00
" **041**, 2 Blades, Cocobolo Handle, Brass Lined, German Silver Bolster Cap and Shield, Spear Blade, Polished, - - - - - " 9 00
" **0113**, 2 Blades, Cocobolo Handle, Brass Lined, German Silver Bolster Cap and Shield, Clip Blade, Polished, - - - - - " 9 00
" **0114**, 2 Blades, Ebony Handle, Brass Lined, German Silver Bolster Cap and Shield, Spear Blade, Polished, - - - - - " 9 00

MORLEY-MURPHY HARDWARE COMPANY, GREEN BAY, WIS

POCKET KNIVES.

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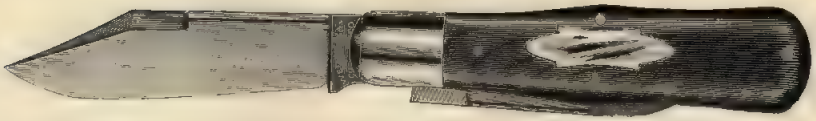
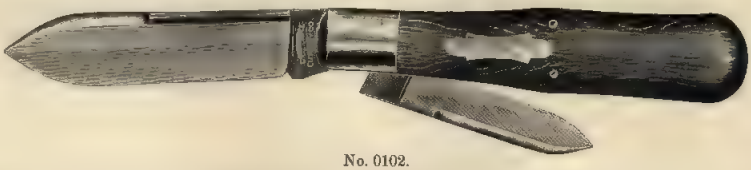


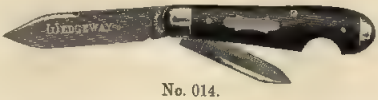
No. **012**, 2 Blades, Ebony Handle, Brass Lined, German Silver Bolster and Shield, Clip Blade, Polished, - - - - - - - - Per dozen, $12 00



No. 0102.

No. **0102**, 2 Blades, Ebony Handle, Brass Lined, German Silver Bolster and Shield, 3-inch Spear Saber Blade, Polished, - - - - - - Per dozen, $12 00

" **0118**, 2 Blades, Ebony Handle, Brass Lined, German Silver Bolster and Shield, Clip Saber Blade, Polished, - - - - - - " 12 00



No. 014.

No. **013**, 2 Blades, Redwood Handle, Brass Lined, German Silver Bolster, Spear Blade, Easy Opener, Polished, - - - - - - Per dozen, $ 9 00

" **013½**, 2 Blades, Cocobolo Handle, Brass Lined, German Silver Cap and Bolster, Shield, Clip Blade, Easy Opener, Polished, - - - - - " 12 00

" **014**, 2 Blades, Ebony Handle, Brass Lined, German Silver Cap and Bolster, Shield, Spear Blade, Easy Opener, Polished, - - - - - " 12 00

No. 015.

No. **015**, 3 Blades, Cocobolo Handle, Brass Lined, German Silver Bolsters and Shield, Polished, Per dozen, $15 00

" **073**, 3 " Ebony " " " " " " " " " 15 00

POCKET KNIVES.

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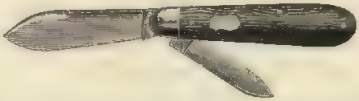
No. **016**, 3 Blades, Ebony Handle, Brass Lined, German Silver Bolsters and Shield, Polished, Per dozen, $15 00

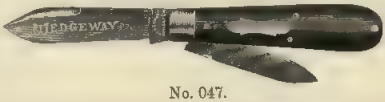
No **018**, 3 Blades, Cocobolo Handle, Brass Lined, German Silver Bolsters and Shield, Polished, Per dozen, $18 00

No **021**, 2 Blades, Redwood Handle, Brass Lined, German Silver Bolsters and Shield, Per dozen, $12 00

No. **022**, 1 Blade, 5 inch Ebony Handle, Iron Lined, Cap and Bolster, 4½ inch Clip Saber Blade, Per dozen, $15 00



No. **023**, 2 Blades, Cocoa Handle, Iron Lined, Iron Bolster Shield, Spear Blades Polished, Per dozen, $7 50
" **0168**, 2 " Ebony " " " " " " " " " " 7 50



No. 047.

No. **026**, 2 Blades, Redwood Handle, Brass Lined, German Silver Bolsters and Shield, Spear Blade, Polished, Per doz., $7 50
" **047**, 2 " Cocobolo " " " " " " " " " " " " 7 50
" **049**, 2 " Ebony " " " " " " " " " " " " 9 00
" **042**, 2 " Cocobolo " Iron " Iron " " " " Clip " " " " 7 50

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POCKET KNIVES.

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No. 0101.

No. **028**, 2 Blades, Cocobolo Handle, Brass Lined, Spear Point Blade, German Silver Bolster and Shield, Polished, - - - - - - Per dozen, $9 00
" **0101**, 2 Blades, Ebony Handle, Brass Lined, German Silver Bolster and Shield, 2½-inch Spear Blade, Saber, Polished, - - - - - " 9 00
" **0117**, 2 Blades, Ebony Handle, Brass Lined, German Silver Bolster and Shield, Clip Blade, Saber, Polished, - - - - - - - " 9 00

No. **030**, 2 Blades, Cocobolo Handle, Brass Lined, German Silver Bolster and Shield, Spear Blade, Polished, - - - - - - - Per dozen, $9 00

No. **031**, 2 Blades, Ebony Handle, Brass Lined, German Silver Bolster and Shield, Clip Blade, Polished, Per dozen, $9 00

No. 0172.

No. **032**, 2 Blades, Ebony Handle, Brass Lined, German Silver Bolsters and Shield, Spear Blade, Polished, - - - - - - - Per dozen, $9 00
" **0119**, 2 Blades, Ebony Handle, Brass Lined, Steel Bolsters and Shield, Clip Blade, Polished, " 9 00
" **0171**, 2 Blades, Ebony Handle, Brass Lined, German Silver Bolster and Shield, Spear Blade, Polished, " 9 00
" **0172**, 2 " Stag " " " " " " " " " " 9 00

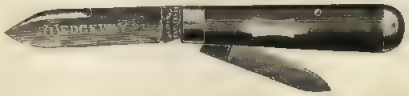
No. **0212**, 2 Blades, Ebony Handle, Brass Lined, German Silver Bolsters and Shields, Spear Blade, Polished, - - - - - - - Per dozen, $12 00

POCKET KNIVES.

WEDGEWAY. FULLY WARRANTED.

No. 033.

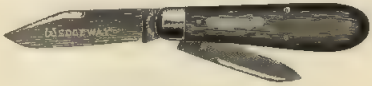
No. **033**, 2 Blades, Ebony Handle, Brass Lined, German Silver Bolsters and Shield, Spear Blade, Polished, Per dozen, $9 00
" **052**, 2 " " " " " " " " " Clip " " " 9 00
" **051**, 2 " Cocobolo Handle, Brass Lined, Steel Bolsters and Shield, Spear Blade, Polished, " 9 00
" **098**, 2 " " " Steel Lined, Bolster and Shield, Spear Blade, Polished, " 9 00
" **0129**, 2 " " " German Silver Bolsters, Shield, Spear Blade, Half Polished, " 9 00



No. **034**, 2 Blades, Ebony Handle, Brass Lined, German Silver Bolster, Cap and Shield, Spear Blade, Polished, - - - - - - - Per dozen, $12 00

No. **035**, 2 Blades, Ebony Handle, Brass Lined, German Silver Bolster, Cap and Shield, Polished, Per dozen, $12 00

No. **037**, 2 Blades, Ebony Handle, Brass Lined, German Silver, Bolsters and Shield, Clip Blade, Polished, Per doz., $12 00



No. 0111.

No. **040**, 2 Blades, Redwood Handle, Steel Lined, Steel Bolster, German Silver Shield, Clip Blade, Polished, - - - - - - - Per dozen, $6 00
" **0104**, 2 Blades, Cocobolo Handle, Brass Lined, German Silver Bolster and Shield, Spear Blade, Polished, - - - - - - " 9 00
" **0105**, 2 Blades, Ebony Handle, Brass Lined, German Silver Bolster and Shield, Spear Blade, Polished, " 9 00
" **0111**, 2 " " " " " " " " " Clip " " " 9 00

MORLEY-MURPHY HARDWARE COMPANY, GREEN BAY, WIS.

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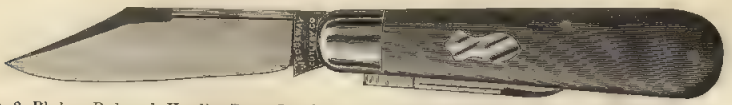
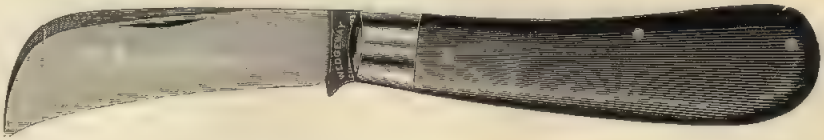
WEDGEWAY. FULLY WARRANTED.

No. **046**, 2 Blades, Ebony Handle, Brass Lined, German Silver Bolster and Shield, Spear Blade, Polished, Per doz., $7 50



No. **048**, 2 Blades, Redwood Handle, Brass Lined, German Silver Bolster and Shield, Clip Blade, Polished, Per dozen, $9 00

No. **050**, 2 Blades, Cocobolo Handle, Brass Lined, German Silver Bolsters and Shield, Spear Blade, Polished, - - Per dozen, $9 00



No. **053**, 1 Blade Cocobolo Handle, Iron Lined, - - - - Per dozen, $9 00

No. **057**, 3 Blades, Buffalo Horn Handle, Brass Lined, German Silver Bolsters and Shield, Spear Blade, Full Polished. - - - - - - - Per dozen, $15 00

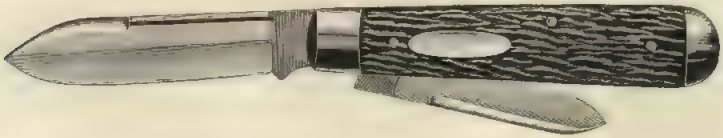
No. **059**, 3 Blades, Ebony Handle, Brass Lined, German Silver Shield and Bolsters, Crocus Finish Blade, Per dozen, $15 00

POCKET KNIVES.

WEDGEWAY. FULLY WARRANTED.

No. 060.

No **060**, 2 Blades, Ebony Handle, Brass Lined, German Silver Cap Bolster and Shield, Spear Blade, Per dozen, $9 00
" **0103**, 2 Blades, Cocobolo Handle, Brass Lined, German Silver Cap Bolster and Shield, Spear Blade, Polished, " 9 00
" **0125**, 2 Blades, Cocobolo Handle, Brass Lined, German Silver Cap Bolster, Shield, Clip Blade, Polished, " 9 00
" **0175**, 2 Blades, Stag handle, Brass Lined, German Silver Cap Bolster, Shield, Clip Blade, Polished, " 9 00



No. **0161**, 2 Blades, Stag Handle, Brass Lined, German Silver Cap Bolster and Shield, Spear Blade, Saber, Polished, Per dozen, $9 00

No. **0170**, 2 Blades and Nail File, Stag Handle, Brass Lined, German Silver Cap and Bolster, Shield, Clip Blade, Polished, Per dozen, $15 00

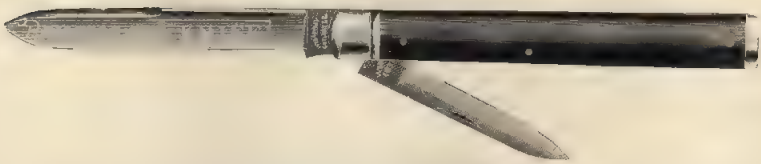
No. **067**, 2 Blades, Ebony Handle, Brass Lined, German Silver Bolster and Shield, Polished, Per dozen, $9 00

MORLEY-MURPHY HARDWARE COMPANY, GREEN BAY, WIS.

MORLEY-MURPHY HARDWARE COMPANY, GREEN BAY, WIS.

POCKET KNIVES.

WEDGEWAY. FULLY WARRANTED.



No. **068**, 2 Blades, Black Horn Handle, "Physicians' Knife," Brass Lined, German Silver Bolster, Spear Blade, Polished, - - - - - Per dozen, $15 00

No. **069**, 2 Blades, Ebony Handle, Brass Lined, German Silver Cap and Bolster, Polished. - Per dozen, $9 00

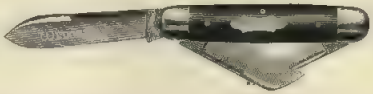
No. **071**, 2 Blades, Redwood Handle, Chain attached, Iron Lined, - - Per dozen, $4 50

No. **072**, 2 Blades, Cocoa Handle, Chain attached, Iron Lined, - - - Per dozen, $7 50

All above one-half dozen in a box.

POCKET KNIVES.

WEDGEWAY. FULLY WARRANTED.



No. **077**, 3 Blades, Ebony Handle, Brass Lined, German Silver Bolsters and Shield, Spear Blade, Polished, Cattle Knife, - - - - Per dozen, $15 00

No. 079.

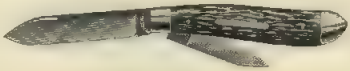
No. **079**, 2 Blades, Cocobolo Handle Brass Lined, German Silver Bolsters and Shield, Polished, Per dozen, $7 50
" **0138**, 2 " Ebony " " " " " " " " " " 8 00
" **0139**, 2 " Stag " " " " " " " " " " 8 00

No **080**, 2 Blades, Ebony Handle, Brass Lined, German Silver Cap, Bolster and Shield, Spear Blade, Polished, - - - - - - Per dozen, $9 00

No 082.

No. **082**, 2 Blades, Ebony Handle, Brass Lined, Iron Bolster and Shield, Spear Blade, Polished, Per dozen, $6 00
" **083**, 2 " Redwood " " " " " " " " " " " 6 00

No. **086**, 2 Blades, Ebony Handle, Brass Lined, German Silver Bolster and Shield, Spear Blade, Polished, Per dozen, $12 00



No. 0115.

No. **087**, 2 Blades, Ebony Handle, Brass Lined, German Silver Bolster and Shield, Spear Blades, Polished, - - - - - - Per dozen, $9 00
" **0115**, 2 Blades, Stag Handle, Brass Lined, German Silver Bolster and Shield, Spear Blade, Polished, Per dozen, 9 00

MORLEY-MURPHY HARDWARE COMPANY, GREEN BAY, WIS.

MORLEY-MURPHY HARDWARE COMPANY, GREEN BAY, WIS.

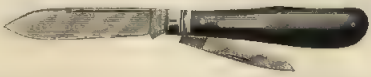
POCKET KNIVES.

WEDGEWAY. FULLY WARRANTED.

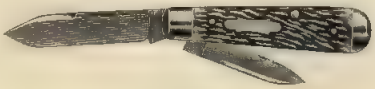
No **091**, 2 Blades, Ebony Handle, Brass Lined, German Silver Bolster and Shield, Spear Blade, Polished, Per doz., $12 00

No. **093**, 2 Blades, White Bone Handle, Brass Lined, German Silver Bolsters, Spear Blade, Polished, Per dozen, $9 00

No. **097**, 2 Blades, Ebony Handle, Brass Lined, German Silver Bolsters and Shield, Spear Blade, Polished, Per doz., $9 00



No. **0106**, 2 Blades, Ebony Handle, Brass Lined, Threaded German Silver Bolster, Shield, Spear Blade, Crocus Polished and Etched, - - - - Per dozen, $12 00



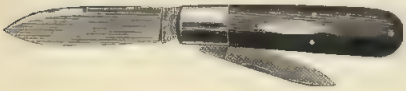
No. 0107.

No. **0107**, 2 Blades, Stag Handle, Brass Lined, Iron Cap, Bolster and Shield, Spear Blade, Polished, Per dozen, $9 00
" **0122**, 2 " Red Wood Handle, Brass Lined, German Silver Cap, Bolster and Shield, Spear Blade, Polished, - - - - - - " 9 00
" **0123**, 2 Blades, Ebony Handle, Brass Lined, German Silver Cap, Bolster and Shield, Spear Blade, Polished. - - - - - - " 9 00
" **0176**, 2 Blades, Stag Handle, Brass Lined, German Silver Cap, Bolster, Shield, Clip Blade, Polished, - - - - - - " 9 00

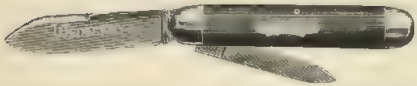
No. **0169**, 2 Blades, Stag Handle, Brass Lined, Grooved German Silver Bolster and Shield, Spear Blade, Polished, - - - - - Per dozen, $9 00

POCKET KNIVES.

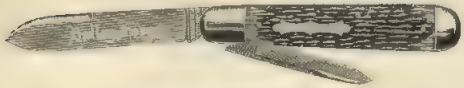
WEDGEWAY. FULLY WARRANTED.



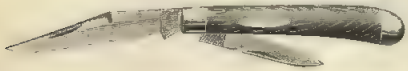
No. **0108**. 2 Blades, Ebony Handle, Iron Lined, Iron Bolster and Shield, Spear Blade, 3 inch Blade, - - Per dozen, $9 00



No. **0109**, 2 Blades, Ebony Handle, Brass Lined, German Silver Bolster and Shield, 3½ inch Blade, Spear Blade, Polished, Per dozen, $12 00



No. **0110**, 2 Blades, Stag Handle, Brass Lined, German Silver Cap, Bolster and Shield, Spear Blade, Polished, Per dozen, $15 00

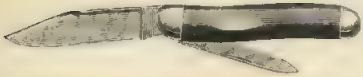


No. **0112**, 2 Blades, Cocobolo Handle, Brass Lined, German Silver Cap, Bolster and Shield, Clip Blade, Polished, Per dozen, $12 00

No. **0116**, 3 Blades, Stag Handle, Brass Lined, German Silvers Bolster and Shield, Clip Blade, Polished, Per dozen, $15 00

No. **0124**, 2 Blades, Ebony Handle, Brass Lined, German Silver Bolsters and Shield, Spear Blade, Polished, Per dozen, $9 00

No. **0127**, 2 Blades, Ebony Handle, Iron Lined, Iron Cap, Bolster and Shield, Spear Blade, Polished, - Per dozen, $12 00



No. **0128**, 2 Blades, Ebony Handle, Brass Lined, German Silver Bolsters and Shield, Clip Blade, Polished, Per dozen, $12 00

No. **0129**, 2 Blades, Cocobolo Handle, German Silver Bolsters and Shield, Spear Blade, Polished, Per dozen, $12 00

No. **0130**, 2 Blades, Ebony Handle, Brass Lined, German Silver Bolsters and Shield, Spear Blade, Polished, - Per dozen, $7 50

MORLEY-MURPHY HARDWARE COMPANY, GREEN BAY, WIS

POCKET KNIVES.

WEDGEWAY. FULLY WARRANTED.

No. **0131**, 2 Blades, Stag Handle, Brass Lined, German Silver Bolster, Spear Blade, Polished, Per dozen, $9 00

No **0132**, 2 Blades, Cocobolo Handle, Brass Lined, German Silver Capped and Shield, Spear Blade, Polished, Per dozen, $9 00

No. **0135**, 2 Blades, Cocobolo Handle, Brass Lined, German Silver Bolsters and Shield, Spear Blade, Polished, Per dozen, $9 00

No. **0136**, 2 Blades, Ebony Handle, Brass Lined, German Silver Bolsters and Shield, Spear Blade, Polished, Per dozen, $9 00

No. **0140**, 2 Blades, Cocobolo Handle, Brass Lined, German Silver Bolsters and Shield, Spear Blade, Polished, Per dozen, $9 00

No. **0141**, 2 Blades, Ebony Handle, Brass Lined, German Silver Bolsters and Shield, Spear Blade, Polished, Per dozen, $9 00

No. **0142**, 2 Blades and File, Stag Handle, Brass Lined, German Silver Bolster and Shield, Spear Blade, Polished, Per dozen, $12 00

No. **0143**, 2 Blades and File, Ebony Handle, Brass Lined, Grooved German Silver Bolsters and Shield, Spear Blade, Polished, - Per dozen, $15 00

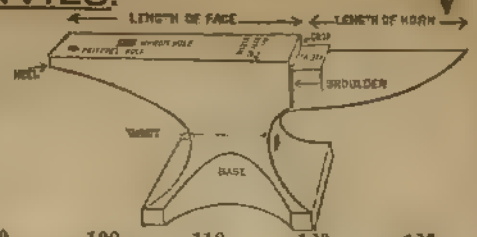
No. **0144**, 2 Blades and File, Ebony Handle, Brass Lined, German Silver Bolsters and Shield, Spear Blade, Polished, - - Per dozen, $15 00

No. **0145**, 2 Blades and File, Stag Handle, Brass Lined, German Silver Bolsters and Shield, Spear Blade, Polished, - - Per dozen, $15 00

No. **0146**, 2 Blades and File, Ebony Handle, Brass Lined, German Silver Bolsters and Shield, Spear Blade, Polished, - - Per dozen, $15 00

TRADE MARK: "BLACK JACK," REGISTERED

BLACKSMITHS' ANVILS.



BLACK JACK*.

SOLID WROUGHT IRON BODY AND HORN, Japanned Finish, with Hardened and Tempered Crucible Tool Steel Face Welded on; Flat Ground and Polished; Square Hardy Hole near the Heel.

Nos.	75	80	85	90	100	110	120	125
Dimensions of Face, inches	3⅛x11	3½x12	3⅝x13½	3⅝x13½	3⅝x14½	3¾x15	3¾x15	3¾x15
Height over all, inches	9	9	9	10	10	10	10⅜	10⅜
Length over all, inches	18½	20½	22½	22½	22½	25	25	25
Size of Hardy Hole, inches	7/16	¾	¾	¾	¾	⅞	⅞	⅞
Weight each, lbs	75 to 79	80 to 83	84 to 87	88 to 95	96 to 106	107 to 116	117 to 123	124 to 128
Per lb.	$0.16	.15	.15	.15	.15	.15	.15	.15

Nos.	130	140	150	160	175
Dimensions of Face, inches	4x16½	4x16½	4x16½	4¼x17	4¼x17
Height over all, inches	10⅜	11	11¼	11¼	11¼
Length over all, inches	27	27	27	28	28
Size of Hardy Hole, inches	⅞	⅞	⅞	1	1
Weight each, lbs	129 to 136	137 to 145	146 to 156	157 to 166	167 to 180
Per lb.	$0.15	.15	.15	.15	.15

Nos.	200	225	250	300	400
Dimensions of Face, inches	4½x18	4¾x20	4 [illegible]x20	5x21	6x23
Height over all, inches	11½	12	12½	13	14¾
Length over all, inches	29½	32½	32½	34	37½
Size of Hardy Hole, inches	1⅛	1⅛	1⅛	1¼	1⅜
Weight each, lbs	190 to 210	211 to 225	226 to 250	251 to 300	301 to 400
Per lb.	$0.15	.15	.15	.15	.15

Eagle.

EAGLE.

SOLID CRYSTALLIZED IRON BODY, Japanned Finish, with Hardened and Tempered Steel Face Welded on, Flat Ground and Polished; Steel Horn Square Hardy Hole near the Heel.

Vulcan.

‡VULCAN.

SOLID CAST IRON BODY AND HORN, Japanned Finish, with Hardened and Tempered Steel Face Welded on, Flat Ground and Polished. Square Hardy Hole near the Heel.

EAGLE.

Nos.	E4	E5	E6	E7	E8	E9	E10
Dimensions of Face, inches	8¾x3	9¼x3	10x3	10½x3¼	10½x3¼	11x3¼	12x3½
Height over all, inches	7½	8¼	8¾	9	9½	10	10½
Length over all, inches	14⅛	15¾	16⅝	17	18	18¾	20
Size of Hardy Hole, inches	⅝	⅝	⅝	⅝	⅝	⅝	⅝
Weight each, lbs.	40	50	60	70	80	90	100
Each	$9.00	10.00	11.00	11.90	13.60	15.30	17.00

‡VULCAN.

Nos.	‡00	‡0	‡1	‡2	‡3	‡4	‡5	‡6	‡7	‡8
Dimensions of Face, inches	1 1/12x4 9/16	2 5/16x5 1/16	2 5/16x5 1/4	2¾x6	2¾x7 1/4	3x7½	3x8½	3¼x10 5/8	3¼x11	3¼x11 7/16
Height over all, inches	4¾	5⅞	5¼	5⅝	6½	7	7½	8	8⅝	9⅜
Length over all, inches	7	9	9	10 5/16	12	13½	14½	17½	18⅛	19⅛
Size of Hardy Hole, inches	½	½	½	½	½	⅝	⅝	⅝	¾	¾
Weight each, lbs	6	10	15	20	30	40	50	60	70	80
Each	$2.00	2.75	3.25	4.00	4.50	5.25	6.00	6.50	7.25	8.00

Nos.	‡9	‡10	‡11	‡12	‡13	‡14	‡15	‡17½	‡20	‡25
Dimensions of Face, inches	3½x12	3½x12½	3½x13 1/16	3¾x12 15/16	3¾x13½	4x13¾	4x14⅞	4¼x15⅞	4¼x16	4½x17½
Height over all, inches	9	9⅞	10½	10¼	10¾	10⅞	11¼	11½	12¼	13
Length over all, inches	19⅝	20⅞	20¾	20¾	21¼	22¼	22⅞	24⅞	25¼	27
Size of Hardy Hole, inches	⅞	⅞	⅞	1	1	1	1	1⅛	1⅛	1⅛
Weight each, lbs	90	100	110	120	130	140	150	175	200	250
Each	$9.00	10.00	11.00	12.00	13.00	14.00	15.00	17.50	20.00	25.00

Packed Loose; Face and Horn Burlapped.

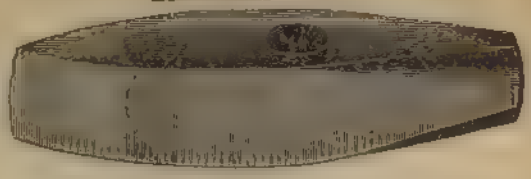
‡Goods marked thus (‡) are not carried in stock and can only be furnished by shipment direct from factory.

BLACKSMITHS' TOOLS.

HOT CHISELS.

Solid Forged Steel, Oil Finished, with Hardened Bit and Face. Oval Eye.

COLD CHISELS.



No. A—Polished Rounding Bit; Round Shoulder.

Width of Bit, inches...	‡1	1 1/8	1 1/4	1 3/8	1 1/2	‡1 3/4	‡2
Weight each, lbs	1 1/4	1 1/2	2	2 1/2	3	3 3/4	5
Length over all, inches	6 1/2	6 3/4	7	7	8 1/2	9	9
Per lb.	$0.40	.40	.40	.40	.40	.40	.40

No. B—Polished Rounding Bit.

Width of Bit, inches...	‡1	1 1/8	1 1/4	1 3/8	1 1/2	‡1 3/4	‡2
Weight each, lbs	1 1/4	1 1/2	2	2 1/2	3	4 1/4	5 1/2
Length overall, inches	5 1/2	5 1/2	6 3/4	6 3/4	7 1/4	8 1/2	8 1/2
Per lb	$0.40	.40	.40	.40	.40	.40	.40

PUNCHES.

Solid Forged Steel, Oil Finished, with Hardened Point; Oval Eye.

No. RP.

No. SP

No. RP—Round; Polished Point.

Diameter of Point, inches	1/4	5/16	3/8	‡7/16	1/2	5/8	‡3/4	‡7/8	‡1
Length over all about, inches	8	8	8	8	8	8	8	8	8
Weight each about, lbs.	1	1	1 1/4	1 1/2	1 1/2	2	2 1/2	3 1/4	3
Per lb	$0.40	.40	.40	.40	.40	.40	.40	.40	.40

‡No. SP—Square; Polished Point.

Size of Point, inches (Square)	‡1/4	‡5/16	‡3/8	‡7/16	‡1/2	‡5/8	‡3/4	‡7/8	‡1
Length over all about inches	8	8	8	8	8	8	8	8	8
Weight each about, lbs	1	1	1 1/4	1 1/2	1 1/2	2	2 1/2	3 1/4	3 1/2
Per lb.	$0.40	.40	.40	.40	.40	.40	.40	.40	.40

TOP SWAGES.

No. TS

Solid Forged Steel, Oil Finished, with Hardened Face; Round Shoulder, Oval Eye.

No. TS—Top Pattern; Average Length, 5½ to 6 inches.

Size, inches	1/4	5/16	3/8	‡7/16	1/2	‡9/16	5/8	3/4	7/8	1	1 1/8	1 1/4
Weight each about, lbs	2	2	2	2	2	2 1/4	2 1/4	2 1/4	2 1/4	3	3	3 1/2
Per lb	$0.40	.40	.40	.40	.40	.40	.40	.40	.40	.40	.40	.40

Size, inches	‡1 1/8	1 1/2	‡1 5/8	‡1 3/4	‡1 7/8	2	‡2 1/8	‡2 1/4	‡2 1/4	‡3	‡3 1/2	‡4
Weight each about, lbs.	3 3/4	3 3/4	4	4 1/16	4 1/4	4 1/4	5	6	6 1/2	7	7 1/2	7 1/2
Per lb	$0.40	.40	.40	.40	.40	.40	.40	.40	.40	.40	.40	.40

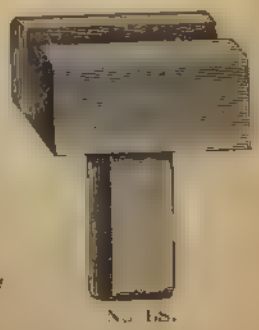
BOTTOM SWAGES.

Solid Forged Steel, Oil Finished, with Hardened Face, Square Shoulder, Square Shank for 1 inch Hole in Anvil.

No. BS—Bottom Pattern; Average Length, 4 to 4½ inches.

Size, inches	1/4	5/16	3/8	‡7/16	1/2	‡9/16	5/8	3/4	7/8	1	1 1/8	1 1/4
Weight each about, lbs.	1 1/2	1 1/2	1 3/4	2	2	2 1/4	2 1/4	2 1/4	2 1/2	2 1/2	2 3/4	2 3/4
Per lb	$0.40	.40	.40	.40	.40	.40	.40	.40	.40	.40	.40	.40

Size, inches	‡1 1/8	1 1/2	‡1 5/8	‡1 3/4	‡1 7/8	2	‡2 1/4	‡2 1/2	‡2 3/4	‡3	‡3 1/2	‡4
Weight each about, lbs	3 1/2	3 3/4	3 3/4	4	4	4 1/4	5 1/2	6 1/4	6 1/2	7	7 1/2	7 1/2
Per lb	$0.40	.40	.40	.40	.40	.40	.40	.40	.40	.40	.40	.40



No. BS.

Packed Loose.

‡Goods marked thus (‡) are not carried in stock and can only be furnished by shipment direct from factory.

BLACKSMITHS' TOOLS.

‡CENTER PUNCHES.

‡COUNTER SINKS.

Solid Forged Steel, Oil Finished, with Hardened Points; Oval Eye.

POLISHED SHARP TAPERING POINT.

No.	‡CP
Weight each about, lbs	2
Length over all, inches	6½
Per lb.	$0.40

POLISHED ROUNDING TAPER POINT.

No.	‡CS
Weight each about, lbs	2
Length over all, inches	6¾
Per lb.	$0.40

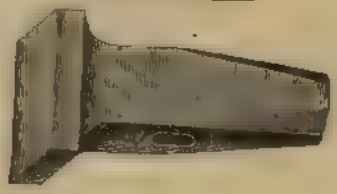
‡HEADING TOOLS.

Solid Forged Steel, Oil Finished, with Hardened Head.

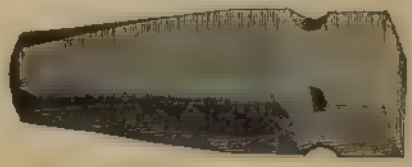
‡No. HT—ROUND HANDLE; POLISHED CYLINDRICAL HEAD, WITH HOLE.

Diameter of Hole, inches	1/4	5/16	3/8	7/16	1/2	9/16	5/8	3/4	7/8	1
Length over all about, inches	12½	12½	12½	12½	12½	13½	13½	13½	14½	14½
Weight each about, lbs	2¾	2⅞	3	3¼	3½	4	4¼	4½	4¾	5
Per lb.	$0.40	.40	.40	.40	.40	.40	.40	.40	.40	.40

FLATTERS.



‡SET HAMMERS.



Solid Forged Steel, Oil Finished, with Hardened Face; Oval Eye.

No. SF-SQUARE POLISHED EXTENSION FACE, ROUNDING SHOULDER.

Size of Face, inches	2	‡2¼	2½	‡2¾	3
Length about, inches	5	5	5	5¼	5½
Weight each about, lbs	2½	3	3½	4¼	5
Per lb	$0.40	.40	.40	.40	.40

Size of Face, inches	‡3¼	3½	‡3¾	‡4
Length about, inches	5½	5¾	6¼	6¼
Weight each about, lbs	6	6½	7	8
Per lb	$0.40	.40	.40	.40

‡No. SH—SQUARE POLISHED FACE AND HEAD

Size of Face, inches	1	1⅛	1¼	1⅜	1½	1¾	2
Length about, inches	5¼	5¼	5½	5½	5¾	6	6
Wgt. each about, lbs.	1¼	1½	2	2½	3	4	6
Per lb.	$0.40	.40	.40	.40	.40	.40	.40

Packed Loose.

‡Goods marked thus (‡) are not carried in stock and can only be furnished by shipment direct from factory.

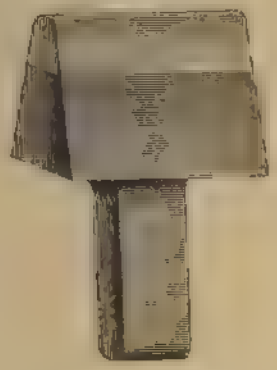
BLACKSMITHS' TOOLS.

FULLERS.

No. TF

Solid Forged Steel, Oil Finished; Hardened Polished Bit.

FULLERS.



No. BF.

No. TF—TOP PATTERN; Round Shoulder, Oval Eye

Length of Bit, inches	‡7/4	‡5/16	3/8	‡7/16	1/2	‡9/16	5/8	3/4	7/8	1	‡1 1/8	1 1/4	‡1 3/8	1 1/2	‡1 3/4	2	‡2 1/2	‡3
Length over all, inches	6	6	6	6	6	6	6	6 1/4	6 1/4	6 1/4	6 1/4	6 1/2	6 1/2	6 1/2	6 3/4	6 1/2	6 1/2	6 1/2
Weight each about, lbs	2	2 1/8	2 1/4	2 1/8	2 1/4	2 1/2	2 1/2	2 3/4	2 3/4	3	3 1/4	3 1/2	3 3/4	4	4 1/4	5	7	8
Per lb.	$0.40	.40	.40	.40	.40	.40	.40	.40	.40	.40	.40	.40	.40	.40	.40	.40	.40	.40

No. BF—BOTTOM PATTERN; Square Shoulder; Square Shank, for 1 inch Hole in Anvil

Length of Bit, inches	‡7/4	‡7/16	3/8	‡7/16	1/2	‡9/16	5/8	3/4	7/8	1	‡1 1/8	1 1/4	‡1 3/8	1 1/2	‡1 3/4	2	‡2 1/2	‡3
Length over all, inches	4 1/2	4 1/2	4 1/2	4 1/2	4 1/2	4 1/2	5	5	5	5	5	5	5	5	5	5	5	5
Weight each about, lbs	1 3/4	1 7/8	1 3/4	1 7/8	2	2 1/8	2 1/4	2 1/2	2 3/4	3	3 1/4	3 1/2	3 3/4	4	4 1/2	5	6	7 1/2
Per lb.	$0.40	.40	.40	.40	.40	.40	.40	.40	.40	.40	.40	.40	.40	.40	.40	.40	.40	.40

HARDIES.

By making frequent calls on our Mail Order Department, you will be able to keep your stock complete and up-to-date and hold your trade at home.

Solid Forged Steel, Oil Finished. Hardened Bit or Face.

PLOW ANVILS.

No. H—Rounding Shoulder; Polished Bit; Square Shank.

Size of Shank, inches	1/2	5/8	3/4	7/8	1	‡1 1/8	‡1 1/4
Length of Bit, inches	1 1/2	1	[illegible]	1 1/8	2	2	2
Length over all, inches	4	4	5 1/4	5 1/4	5 1/4	5 1/2	5 1/2
Wgt. each about, lbs	1/2	3/4	1	1 1/2	2	2 1/2	2 1/2
Per lb.	$0.40	.40	.40	.40	.40	.40	.40

Polished Round Head; Rounding Face and Shoulder; Round Tapering Shank.

No.	PA
Face Diameter about, inches	3
Length over all, inches	5 1/4
Weight each about, lbs	[illegible]
Per pound	$0.[illegible]

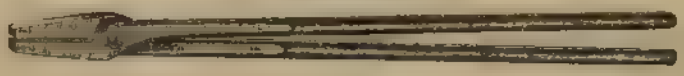
Packed Loose.

‡Goods marked thus (‡) are not carried in stock and can only be furnished by shipment direct from factory

BLACKSMITHS' TOOLS.

Solid Wrought Steel; Drop Forged; Oil Finished.

REGULAR TONGS.



REGULAR, WITH STRAIGHT LIPS.

Nos	‡S 16	S 18	S 20	S 22	S 24	‡S 26	‡S 28	‡S 30
Length, inches	16	18	20	22	24	26	28	30
Weight per pair about, lbs	1 1/4	2	2 1/4	3	3 1/2	3 [illegible]	4 [illegible]	5 1/4
Per lb	$0.15	.15	.15	.15	.15	.15	15	15

BOLT TONGS.

BOLT, WITH BOWED LIPS, HOLLOWED ENDS

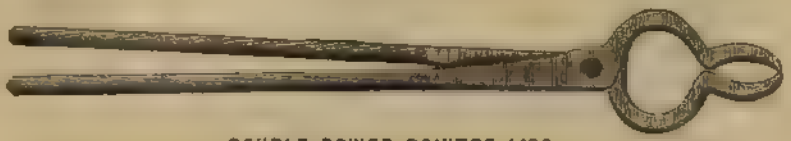
Nos	‡B4	‡B5	‡B6	‡B8	B10	‡B12	‡B14	‡B16	‡B18	‡B20
For Holding Round Iron, in	1/4	5/16	3/8	1/2	5/8	3/4	7/8	1	1 1/8	1 1/4
Length, inches	18	18	20	20	22	22	24	24	24	24
Weight per pair about, lbs	1 7/8	1 7/8	2 1/8	2 1/8	2 [illegible]	3 1/8	3 5/8	3 [illegible]	4	4 1/2
Per lb	$0 25	.25	.25	25	.25	25	.25	25	.25	25

‡GAD TONGS.

BOWED LIPS, STRAIGHT ENDS.

Nos.	‡G18	‡G20	‡G22	‡G24
Length, inches	18	20	22	24
Weight per pair about lbs	2	2 1/4	3	3 3/8
Per lb.	$0.20	.20	.20	20

‡PICK-UP TONGS.



DOUBLE BOWED POINTED LIPS

	Per Pound
‡No. P22—Length 22 inches; Weight per pair about 2 7/8 lbs.	$0.26

Packed Loose.

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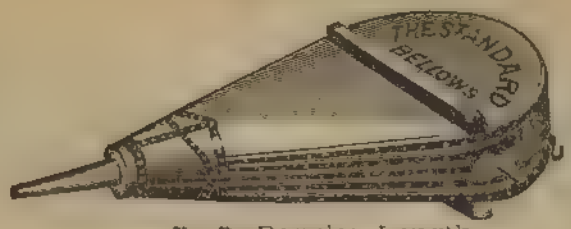
BELLOWS.



STANDARD, BLACKSMITHS'

Hardwood Outside Boards, Cross Cleated, Painted Red; Japanned Sheet Steel Cap and Funnel; Five Leaf Pattern, with Cowhide Split Leather Sides or Folds; Trimmed with ⅝ inch Wood Mouldings. Secured with Chemically Coated Nails Steel Side Pivots and Rear Hook.

No. B Regular Length.

Width, inches	24	26	28	30	32	34	36	38	40
Length, inches	46	49	52	55	58	61	64	67	70
Thickness Closed, inches	5	5	5	5	5¼	5¼	5¼	5¼	5¼
Weight each about, lbs.	35	42	48	54	75	78	83	85	97
Each	$10.00	11.00	12.00	13.00	14.00	16.00	18.00	20.00	23.00

No. A Extra Length.

Width, inches	36	38	40
Length, inches	73	76	83
Thickness closed, inches	5¼	5¼	5¼
Weight each about, lbs	95	110	115
Each	$21.00	24.00	28.00

ST. LOUIS BLACKSMITHS'.

Hardwood Outside Boards, Cross Cleated, Painted Red; Japanned Sheet Steel Cap and Funnel; Five Leaf Pattern, with Extra Fine Cowhide Grain Leather Sides or Folds, Extra Wide Spread; Trimmed with ⅝ inch Wood Mouldings. Secured with Chemically Coated Nails; Steel Side Pivots and Rear Hook; Extra Quality

No. C—BLACKSMITHS'.

Width, inches	34	36	38	40
Length, inches	68	71	74	77
Thickness, Closed, inches	6¼	6¼	6¼	6¼
Weight each about, lbs.	95	[illegible]	105	110
Each	$16.00	18.00	21.00	23.00

Packed Loose.

STANDARD, HAND.

Single Fold; Hardwood Outside Boards, Painted Red; with Handle Extensions and Leather Loop for Fastening; Japanned Sheet Steel Cap and Funnel; Rough Leather Sides or Folds; Faced with Plain Leather Strips and Studded with Tacks; 1⅞ inch Hole in Bottom, with Leather Valve Flap.

No. H.—HAND

Width, inches	8	10	12
Length, inches	17¼	19	21½
Thickness, Closed, inches	2	2	2
Weight per dozen about, lbs.	18	26	36
Per dozen	$10.50	12.00	15.00

BORAX.

Per Pound

No. B—PURE CRUSHED BORAX, for Welding Purposes; in Burlap Sacks Containing about 100 lbs each..... $0.30

Sold in Bulk as Desired.

WELDING COMPOUND.

CHERRY HEAT WELDING COMPOUND.

Coarse Granulated Mixture, for Steel, Iron or Malleable Iron.

Nos.	CH25	CH50	CH100
In Wood Boxes Containing, lbs.	25	50	100
Per lb.	$0.25	.25	.25

CLIMAX WELDING COMPOUND.

A Granulated Mixture, for all Grades of Steel.

Nos.	C25	C50	C100
In Wood Boxes Containing, lbs.	25	[illegible]	100
Per lb.	$0.20	.20	.20

Sold Only in Full Boxes.

TUYERE IRONS.

DUCK'S NEST.

Cast Iron; Natural Finish Head and Neck; Entire Iron Bolted Together.

Per Dozen

No. 5—LIGHT WEIGHT, ROUND FLAT HEAD 7¼ inches Diameter; Diameter of Hole 3½ inches; Length over all 13½ inches; Weight per dozen about 108 lbs $8 50

Per Dozen

No. 40—HEAVY WEIGHT, SQUARE FLAT HEAD 7¼x7¼ inches Diameter of Hole 3⅜ inches, Length over all 11½ inches, Weight per dozen about 180 lbs.....$15.00

Your Mail Orders will receive our most careful attention at all times.

Cast Iron, Japanned Finish Head and Neck

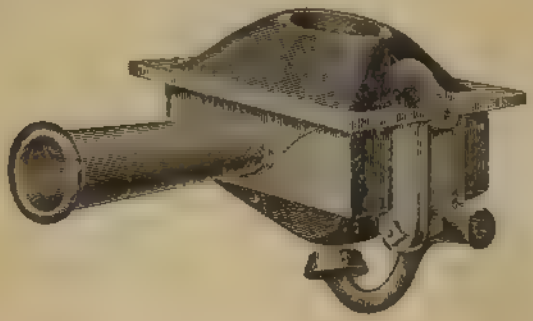
Cast Iron, Natural Finish Head and Neck

Per Dozen

No. 6—DUCK'S NEST, HEAVY WEIGHT, ROUND FLAT HEAD 7¼ inches Diameter, Made in Two Pieces Bolted together Diameter of Hole 4 inches; Length over all 14 inches; Weight per dozen about 204 lbs....$18.00

Per Dozen

No. 2—NEGRO HEAD; HEAVY WEIGHT; FULL SQUARE HEAD 4 inches Wide with 1 inch Hole, Length over all 11 inches, Weight per dozen about 216 lbs..... .$10.00



BALL VALVE.

Cast Iron, Japanned, Extra Heavy, with Tapering Funnel; Revolving Triangular Ball Valve to Regulate the Flow of Air.

Per Dozen

No. D—DIAMOND F; IN TWO PIECES, Bolted together, Rectangular Top Plate 7⅞x6⅞ inches, with Oval Convex Face and 3x2 inch Oval Opening, Funnel 8 inches Long, with 2⅜ inch Inlet, Bottom Opening 2¾ inches Diameter with Hinged Cover, Length over all 14 inches Height 7½ inches, without Rods; Weight per dozen about 228 lbs $30 00

Per Dozen

No. N—NORTON; ONE PIECE CYLINDRICAL BODY Round Top Plate 6½ inches Diameter; With 2¼ inch Round Opening; Funnel 7½ inches Long, with 2⅜ inch Inlet, 3½ inch Bottom Opening, with Sliding Cover and Spring Steel Guide, with 33 inch Steel Rods to work Valve and Cover, Length over all (except Rods) 12¾ inches, Height 8¾ inches; Weight per dozen about 336 lbs.....$28 00

Packed Loose.

FORGES.

PORTABLE

Pressed Sheet Steel Bowl and Wind-Guard; Three Legs, Complete with Blower and Running Gear.

Each

No. 7—BUFFALO BENCH; Hand Gear Wheel Action, Concaved Bent 13 inch Legs, Spread at Base 18 inches, Height over all 21 inches, to Top of Bowl 15 inches, Bowl 15 inches Diameter; Large Gear Wheel 12 inches in Diameter; Fan 6 inches in Diameter; Painted Black; Weight each about 40 lbs. $16.00

Each

No. 100—LANCASTER RIVETERS' OR CONTRACTORS'. Lever Action; Tubular Steel Braced Legs, Spread at Base 28 inches, Height over all 43 inches, to Top of Bowl 31 inches, Bowl 21 inches Diameter, Large Belt Wheel 15 inches Diameter; Fan 9 inches Diameter, Painted Red; Weight each about 80 lbs. $24.00

BUFFALO.

Heavy Pressed Sheet Steel Bowl and Hood or Guard; Four Tubular Steel Braced Legs; Spread at Base 20x20 inches; Complete with Blower and Lever Action Running Gear; Bent Hardwood Lever; Height to Top of Bowl 33 inches; Bowl 18 inches Diameter; Large Gear Wheel 12 inches Diameter; Fan 6 inches Diameter; Painted Black.

Each

No. 5—RIVETERS' OR CONTRACTORS'. WITH WIND-GUARD. Height over all 47 inches. Weight each about 65 lbs. $24.00

Each

No. 4 TOOLMAKERS'. WITH HALF OPEN HOOD. Height over all 32½ inches; Weight each about 70 lbs. $27.00

BUFFALO.

Heavy Pressed Sheet Steel Bowl and Hood or Guard; Four Tubular Steel Spread Legs; Complete with Blower and Running Gear; Painted Black.

Each

No. 625—CONTRACTORS', CRANK ACTION, WITH WIND-GUARD; Enclosed Double Gearing Counter-balance, Crank Height over all 47 inches to Top of Bowl 35 inches, Bowl 18 inches Diameter, 5 inches Deep, Fan 10 inches in Diameter, Spread of Legs at Base 1[illegible] inches, Weight each about 125 lbs. $35.00

Each

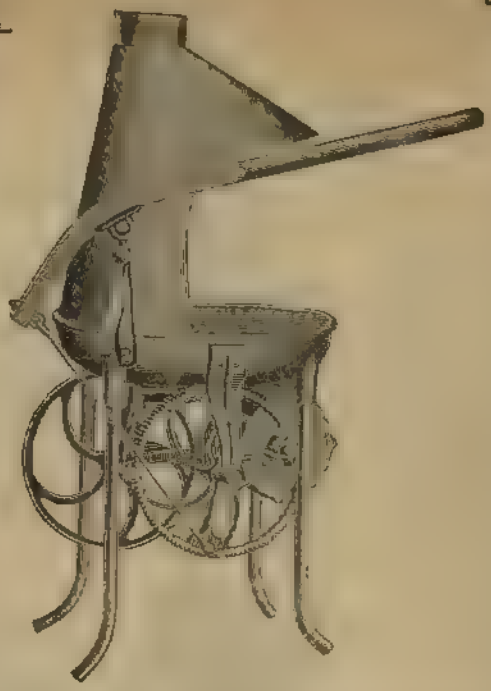
‡***No. 0—BLACKSMITHS', LEVER ACTION, WITH HALF OPEN HOOD*** *Bent Hardwood Lever, Height over all 60 inches, to Top of Bowl 32 inches, Bowl 28x40 inches; Large Gear Wheel 20 inches Diameter, Fan 10 inches Diameter, Spread of Legs at Base 41x28 inches. Weight each about 255 lbs. . $50.00*

One in a Crate.

‡*Goods marked thus (‡) are not carried in stock and can only be furnished by shipment direct from factory.*

FORGES.

PORTABLE.



‡BUFFALO.

Heavy Pressed Sheet Steel Bowl and Hood, or Guard; Four Tubular Steel Legs, Spread at Base 20x27 inches; Complete with Blower and Lever Action Running Gear, Bent Hardwood Lever; Height to Top of Bowl 31 inches, Bowl 27x21 inches; Large Gear and Belt Wheels 16 inches in Diameter; Fan 10 inches in Diameter; Painted Black.

Each

‡No. 3—CONTRACTORS', WITH WIND GUARD and Four Cast Iron Lift Handles; Height over all 44 inches. Weight each about 140 lbs $36 00

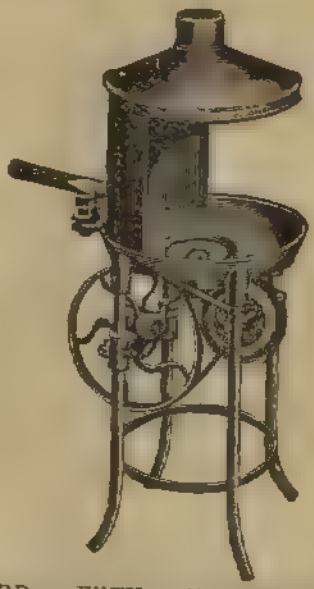
Each

‡No. 1—MACHINISTS', WITH HALF OPEN HOOD Height over all 64 inches; Weight each about 145 lbs $40.00

STANDARD.

For Farmers and Contractors.

Pressed Sheet Steel Bowl and Hood, or Guard; Four Tubular Steel Braced Legs, 20x20 inch Spread at Base; Complete with Blower and Lever Action Running Gear; Bent Hardwood Lever; Large Belt Wheel 14 inches Diameter; Painted Red.



Each

No. 150—STANDARD, WITH WIND-GUARD; Height over all 42 inches, to Top of Bowl 30 inches, Diameter of Bowl 18 inches, Fan 8 inches, Weight each about 81 lbs..... $16 80

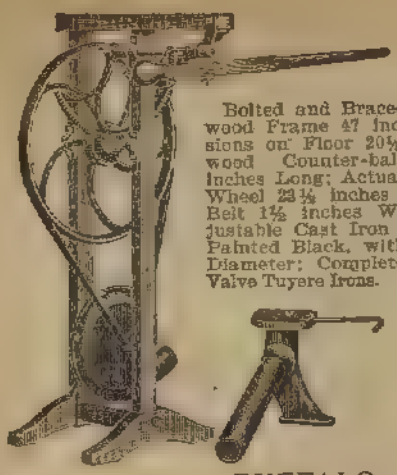
Each

No. 151—STANDARD, WITH HALF HOOD; Height over all 49 inches, to Top of Bowl 30 inches; Diameter of Bowl 18 inches; Fan 8 inches, Weight each about 90 lbs.....$19.00

One in a Crate.

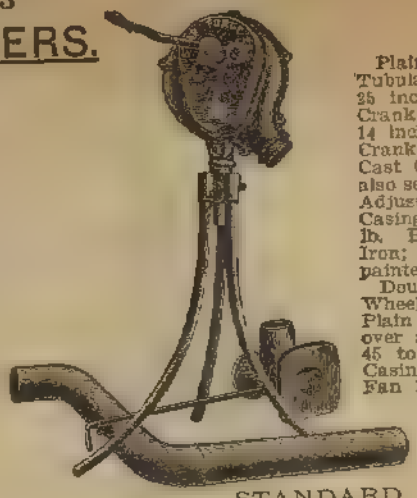
‡Goods marked thus (‡) are not carried in stock, and can only be furnished by shipment direct from factory.

BLOWERS.



Bolted and Braced Varnished Hardwood Frame 47 inches High; Dimensions on Floor 20½x15 inches; Hardwood Counter-balanced Lever 54 inches Long; Actuating Cast Iron Belt Wheel 23½ inches Diameter; Leather Belt 1½ inches Wide; Standard Adjustable Cast Iron Scroll Fan Casing, Painted Black, with Fan 14 inches in Diameter; Complete with 15 lb. Ball Valve Tuyere Irons.

BUFFALO.



Plain Bearing; Three Tubular Steel Bent Legs, 25 inch Spread at Base; Crank Movement, with 14 inch Counter-balanced Crank; Dust Proof Closed Cast Gear Casing, which also serves as an Oil-well; Adjustable Cast Iron Fan Casing; Complete with 18 lb. Ball Valve Tuyere Iron; Entire Blower painted Black.

Double Gear; Cast Gear Wheels and Steel Shaft; Plain Bushings; Height over all adjustable from 45 to 49½ inches; Gear Casing 11 inches High; Fan 12 inches Diameter.

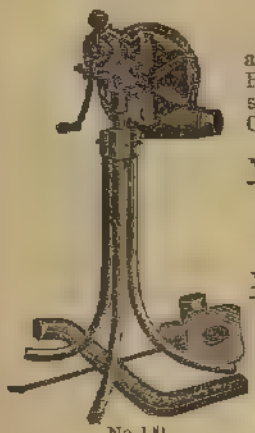
STANDARD.

Each

No. 33—Weight each, complete, about 130 lbs....$25.00

No. 01—STANDARD; Weight each, complete, about 115 lbs. $21.00

BUFFALO.



No 100.

Ball Bearing; Three Tubular Steel Bent Legs, 25 inch Spread at Base; Crank Movement, with 15 inch Counter-balanced Crank; Height Adjustable; Dust Proof Closed Cast Gear Casing, which also serves as an Oil Well; Standard Adjustable Cast Iron Scroll Fan Casing; Complete with 25 lb. Ball Valve Tuyere Iron.

Each

No. 100—PAINTED RED, SPIRAL GEAR; Deep Cut Brass Wheels and Steel Shafts; Brass Bushings; Height over all, Adjustable, from 42 to 46 inches; Gear Casings 7 inches High; Fan 10 inches Diameter; Weight each, Complete, about 115 lbs.....$35.00

No. 200—PAINTED BLACK, TRIPLE GEAR, Deep Cut Cast Gear Wheels and Steel Shafts; Plain Bushings; Height over all, Adjustable, from 43½ to 47½ inches; Gear Casing 13 inches High; Fan 9¾ inches Diameter; Weight each, Complete, about 95 lbs..... 35.00

One in a Crate.

No. 200.

BOLT CLIPPERS.

Tempered Oil Finish Detachable Cast Steel Cutting Jaws, Japanned Cast Iron Compound Lever Handles with Socket Joints; Rubber Bumpers between Handles.

"EASY."

Nos	1E	2E
Length, inches	24	30
Cut Bolts up to, inches	⅜	½
Weight per pair about, lbs	4¼	7½
Per pair	$5.00	7.00

"NEW EASY."

Nos.	1NE	2NE	3NE
Length, inches	24½	30	36
Cut Bolts up to, inches	⅜	½	⅝
Weight per pair about, lbs	5¾	8¾	11½
Per pair	$5.00	7.00	9.00

‡Extra Jaws for "Easy" Bolt Clippers.

Nos	‡1E	‡2E
Per pair	$1.65	2.35

‡Extra Jaws for "New Easy" Bolt Clippers.

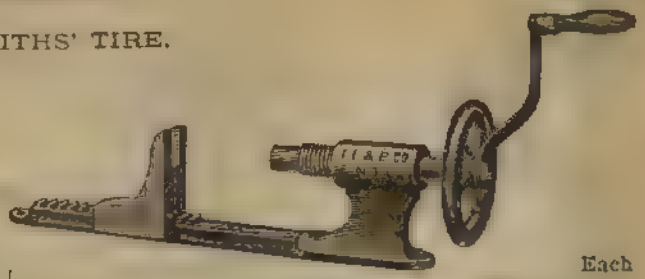
Nos	‡1NE	‡2NE	‡3NE
Per pair	$1.65	2.35	3.00

Packed Loose.

‡Goods marked thus (‡) are not carried in stock and can only be furnished by shipment direct from factory.

DRILLS.

BLACKSMITHS' TIRE.



Each

No. 2—Japanned Cast Iron Frame, Crank and Feed Wheel; Polished Steel Feed Screw and Chuck, Painted Hardwood Grip on Crank; Diameter of Feed Screw 1⅝ inches. Will Drill to the center of a 8 inch Circle. Length over all 31 inches. Tail End of Frame Adjustable with Ratchet Teeth. Weight each about 26 lbs. $3.00

Each

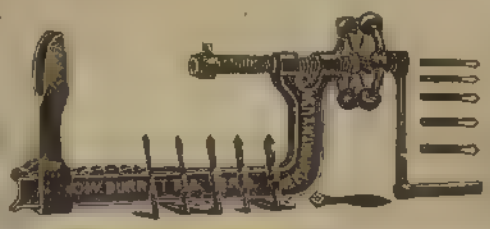
No. 1—Natural Finish Cast Iron Frame, Crank and Feed Wheel; Polished Steel Feed Screw and Chuck; Plain Finish Hardwood Grip on Crank; Diameter of Feed Screw 1⅝ inches; Will Drill to the center of a 7 inch Circle; Length over all 28½ inches; Tail End of Frame Adjustable with Ratchet Teeth; Weight each about 22 lbs. $2.40

Will take Morse Square Shank Drills No. 109E.

One in a Crate.

BURRITT'S Combination Clamp and Drill.

Red Enameled Cast Iron Frame Crank and Clamp Screw; Steel Threaded Feed Screw; Polished Brass Chuck. The Chuck Spindle extends through and revolves inside the Feed Screw; the Feed Screw has a Square Thread and will not Rip. Crank attached to Chuck Spindle; Tail End of Frame Adjustable with Ratchet Teeth



Will Drill Holes to the center of a 7 inch Circle, and will Drill through 3 inch Steel; Length of Frame 12½ inches. Length over all 19 inches. Can be Screwed to a Bench, Fastened in a Vise or Clamped to any Vehicle or Implement in the field or road; Countersinks for all Screw Tire Bolts, and Drills Holes for all Carriage and Tire Bolts.

Each

No. BD—COMPLETE WITH 5 DIAMOND POINT DRILLS, Assorted, One each, Sizes 3/16, ¼, 5/16, ⅜ and ½ inch; Weight each about 6 lbs. $2.25

No. BS—COMPLETE WITH 5 SYRACUSE TWIST DRILLS, Assorted, One each, Sizes 3/16, ¼, 5/16, ⅜ and ½ inch; Weight each about 6 lbs. 3.00

Packed Loose.

By Making Frequent Calls on Our Mail Order Department You Will be Able to Keep Your Stock Complete and Up-to-date and Hold Your Trade at Home.

Bench

Each

No. 69—BUFFALO, Japanned Cast Iron Frame and Wheels, Steel Axles, Chuck and Crank; Height over all 26 inches; Will drill to center of a 9 inch Circle, fitted for ½ inch Drill Shank, Weight each about 50 lbs. $15.00

One in a Crate.

POST DRILLS.

Natural Finish Cast Iron Frame, Wheels, Gearing, Crank and Swing Table; Steel Table Post, Shafts, Axle and Chuck.

SWING TABLE.

No. 1½—GEARED HAND FEED; Drills Holes up to ¾ inch, and to center of 12 inch Circle; Chuck fitted for Drills with ½ inch Straight Shank; Diameter of Shaft 1 inch; Diameter of Chuck 1¾ inches; Diameter of Table 6 inches. Diameter of Feed Wheel 5¾ inches. Diameter of Drive Wheel 6½ inches; Length of Crank 9½ inches, Entire Drill Bolted to Plain Finish Hardwood Upright 3 feet 2 inches Long, 5 inches Wide, 1½ inches Thick, Height over all 35 inches; Weight each about 56 lbs. **$6 00** Each

No. 101—DOUBLE GEARED, SELF FEED Drills Holes up to ¾ inch and to center of 12 inch Circle Chuck fitted for Drills with ½ inch Straight Shank. Diameter of Shaft 1 inch. Diameter of Chuck 1¾ inches Diameter of Table 8 inches. Diameter of Feed Wheel 5¾ inches. Diameter of Drive Wheel 6½ inches; Diameter of Fly Wheel 14½ inches, Length of Crank 9½ inches; Entire **Drill Bolted to Plain Finish Hardwood Upright, 3 feet 2 inches Long, 5 inches Wide, 1½ inches Thick; Height over all 35 inches; Weight each about 77 lbs.** ..... **$8.00** Each

Painted Cast Iron Frame, Gearing, Feed, Fly Wheels and Table; Steel Shaft, Axles, Chuck and Crank

SWING TABLE.

No. 12—SELF FEED; Drills Holes up to 1¼ inches and to center of 15 inch Circle Chuck fitted for Drills with ½ inch Straight Shank; Steel Shaft Diameter 1 inch, Diameter of Chuck 1¾ inches, Diameter of Table 10 inches; Diameter of Feed Wheel 7½ inches, Diameter of Drive Wheel 7 inches; Diameter of Fly Wheel 14 inches; Length of Crank 12 inches. Entire Drill Bolted to Plain **Finish Hardwood Upright 3 feet 6 inches Long 5 inches Wide 1½ inches Thick, Height over all 40 inches; Weight each about 125 lbs.** ..... **$10.00** Each

BUFFALO.

No. 66—AUTOMATIC THREE FEED; Drills Holes up to 1¼ inch, and to center of 15 inch Circle; Chuck fitted for Drills with ½ inch Straight Shank. Diameter Shaft 1 inch, Diameter of Chuck 1¾ inches. Diameter of Table 8 inches; Diameter of Feed Wheel 5½ inches; Diameter of Drive Wheel 7 inches; Diameter of Fly Wheel 14 inches; Length of Crank 12 inches; Cast Iron Upright 37 inches **Long, 4½ inches Wide, 1½ inches Thick;** Height over all 40 inches; Weight each about **100 lbs.** ..... **$22 00** Each

One in a Crate.

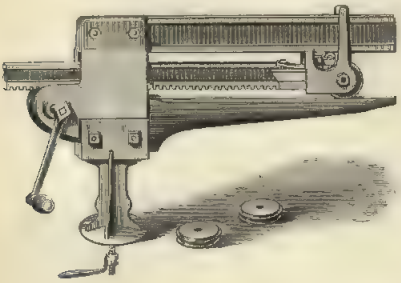
TINSMITHS' TOOLS AND MACHINES.

STOW'S PATENT ADJUSTABLE BAR FOLDERS.

Will Turn Locks from $\frac{5}{32}$ to 1 inch in Width.

The Movement of the Gauge is instantaneous The Set Screw in front and at the left of the Machine holds the Gauge firmly in place and secures a fold or lock of uniform width.

No. **152**, 20 inches, will turn Locks from $\frac{1}{8}$ to 1 inch, Weighs 80 pounds, - - Each, $30 00
" **154**, 30 " " " " " $\frac{1}{8}$ " 1 " " 155 " - - " 40 00



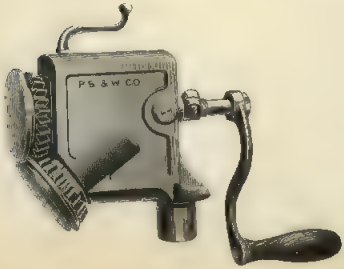
PATENT BRASS MOUNTED GROOVERS.

With Steel Bar and Milled Horn.

No. **01**, For Heavy Work, 20 inches, with Stand, Weighs 78 pounds, - Each, $13 50

" **02**, For Common Work, 17 inches, with Stand, Weighs 69 pounds, - " 11 00

Above Groovers may be used on material as thick as No. 24 Gauge.



STOW'S ENCASED MACHINES.

With Adjustable Boxes and Duplicate Parts.

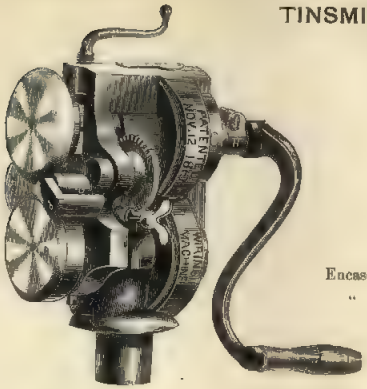
AMERICAN SETTING DOWN MACHINE.

The American Setting Down Machine is exceedingly well made and strong, and can be used on Metal as heavy as No. 22 Gauge.

American Setting Down Machine, with Standard, Each, $9 75
" " " " without Standard, " 9 00

MORLEY-MURPHY HARDWARE COMPANY, GREEN BAY, WIS

TINSMITHS' TOOLS AND MACHINES.

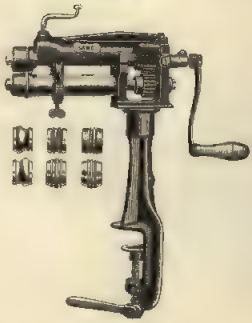


STOW'S ENCASED MACHINES.

With Adjustable Boxes and Duplicate Parts.

WIRING MACHINES.

Encased, Wiring Machine, with Standard, Each, $14 00
" " " without " - " 13 25



STOW'S PATENT BEADING MACHINES.

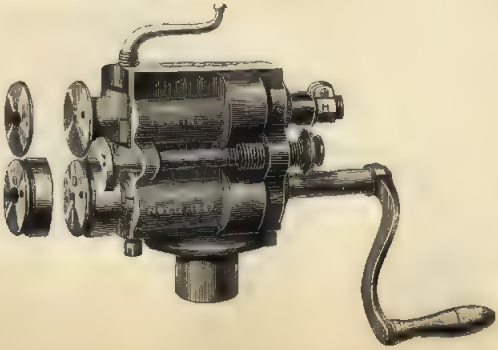
With Adjustable Boxes and Duplicate Parts.

No. 4, 6 inches, with 4 pairs Rollers and Rotary Stand, weighs 35 pounds, Each, $19 75

Size of Beads as follows: Ogee, $\frac{3}{4}$ inch; Triple, $\frac{5}{8}$ inch; Triple Coffee Pot, $\frac{1}{2}$ inch; Single, $\frac{9}{16}$ inch.

No. 5, 4 inches, for Tin, with 5 pairs Rollers and Rotary Stand, weighs 20 pounds, - - - Each, $16 75

Size of Beads as follows: Astragal, $\frac{7}{16}$ inch; Ogee, $\frac{7}{16}$ inch; Triple Coffee Pot, $\frac{5}{8}$ inch; Triple Coffee Pot, fine, $\frac{9}{16}$ inch; Single Bead, $\frac{1}{2}$ inch.



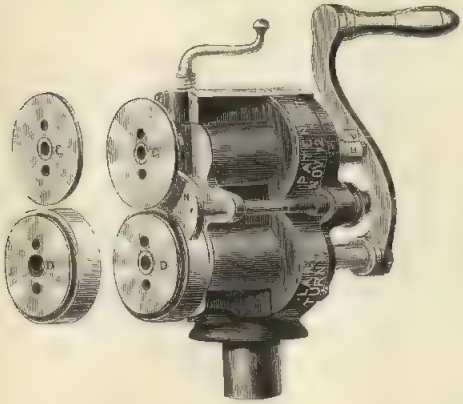
SMALL TURNING MACHINES.

Encased Small Turning, with Extra Upper and Lower Face, with Standard, Each, $11 25

Encased Small Turning, with Extra Upper and Lower Face, without Standard, Each, 10 50

MORLEY-MURPHY HARDWARE COMPANY, GREEN BAY, WIS.

TINSMITHS' TOOLS AND MACHINES.



STOW'S ENCASED MACHINES.

With Adjustable Boxes and Duplicate Parts.

LARGE TURNING MACHINES.

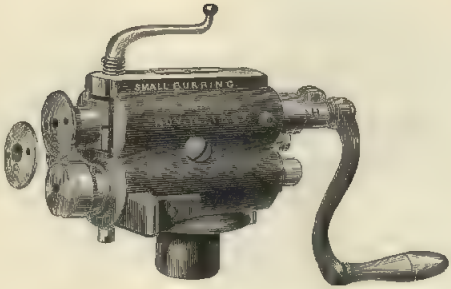
Encased, Large Turning, with Extra Upper and Lower Face, with Standard, - Each, $11 50

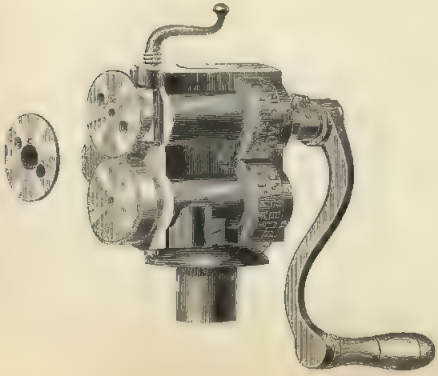
Encased, Large Turning. with Extra Upper and Lower Face, without Standard, - Each, 10 75

SMALL BURRING MACHINES.

Encased, Small Burr, with Extra Upper Face, with Standard, Each, $10 00

Encased, Small Burr, with Extra Upper Face, without Standard, Each, 9 25





LARGE BURRING MACHINES.

Encased, Large Burr, with Extra Upper Face, with Standard, Each, $10 50

Encased, Large Burr, with Extra Upper Face, without Standard, Each, 9 75

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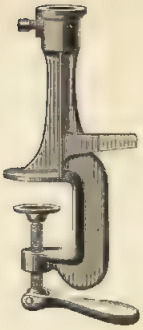
MORLEY-MURPHY HARDWARE COMPANY, GREEN BAY, WIS

TINSMITHS' TOOLS AND MACHINES.



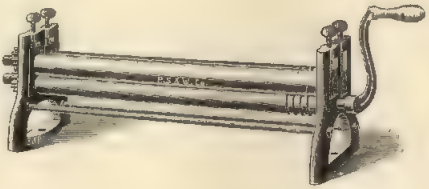
Wiring Machine Standard.

IMPROVED MACHINE STANDARDS.

Encased and Columbian Machines are all packed with these Standards. These Standards are so made as to be used on any bench varying in thickness from 1 to 3½ inches. The Standards are also adapted to Raymond's and No. 1 Machines.

Improved Machine Standard, - Each, $1 00

Small Machine Standard.



STOW'S PATENT. STOVE AND TIN PIPE FORMERS.

These Formers are made with Steel Rolls. They are Turned, Finely Finished, and are free from indentations and imperfections.

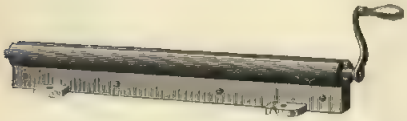
		Length. In.	Weight. Lbs.	Each
No. **0.**	For Cans, 2 in. Rolls,	37	150	$24 00
" **0½**	" " 2 " "	40	155	26 00
" **1,**	Stove Pipe Former, 2 inch Rolls,	30	130	19 00
" **2,**	" " " 1¾ " "	30	105	18 00
" **31,**	Tin, " " 1½ " "	20	54	10 00

WRIGHT'S IMPROVED SHEET IRON FOLDERS.

Will Turn Locks $\frac{3}{16}$, $\frac{5}{16}$, ½ and ⅝ inch.

No. **12**, Wright's Improved Sheet Iron Folder, 30 inches, Weight 69 pounds, Each, $15 00

TINSMITHS' TOOLS AND MACHINES.



IRON BOTTON GUTTER BEADERS WITH ENCLOSED ROD.

No. **01**, Iron Bottom, with Enclosed Rod, 42 inches. Weighs 25 pounds, - Each, $9 00

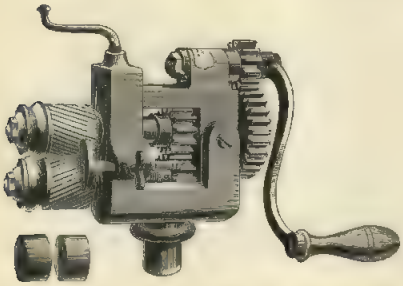
" **02**, Iron Bottom, with Enclosed Rod, 30 inches, Weighs 18 pounds. - " 6 00

In ordering the above Gutter Beaders be sure and specify the diameter of Rod wanted.

STEEL GUTTER RODS.

No. **01**, Steel Gutter Rods, $\frac{1}{2}$ to $\frac{7}{8}$ inch Diameter, 42 inches long, - Each, $4 50

" **02**, Steel Gutter Rods, $\frac{1}{2}$ to $\frac{3}{4}$ inch Diameter, 30 inches long, - " 3 00



COMBINED STOVE PIPE CRIMPER AND BEADER.

No. **7**, Stove Pipe Crimper and Beader complete, with Stand, Weighs 45 pounds, Each, $12 00

STOW'S SQUARING SHEARS.

The above cut represents our Improved Squaring Shears, with Top and Side Extension Table, Front Extension Arms and Patent Quick Acting Back Guage. The side springs are provided with a Set Screw arranged to regulate the tension and compensate for wear. The Back Gauge is simple, being constructed of Tubing; the operator who wishes to lengthen the Gauge can substitute other Tubing of the desired length. The Arms are 30 inches long. The adjustment is rapid and accurate.

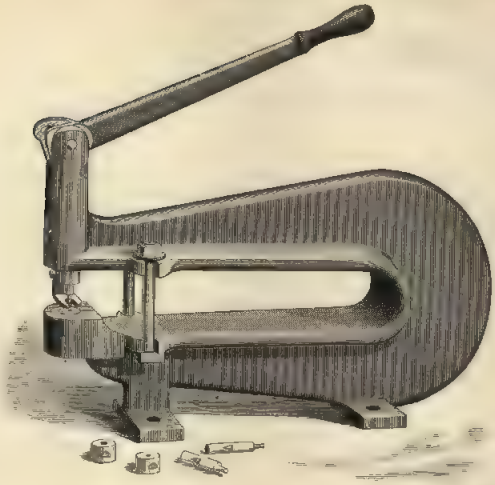
No. **130**, Will cut No. 18 Iron, 31 in. long, Each, $52 00

" **140**, " " " 18 " 42 " " " 134 00

MORLEY-MURPHY HARDWARE COMPANY, GREEN BAY, WIS.

TINSMITHS' TOOLS AND MACHINES.

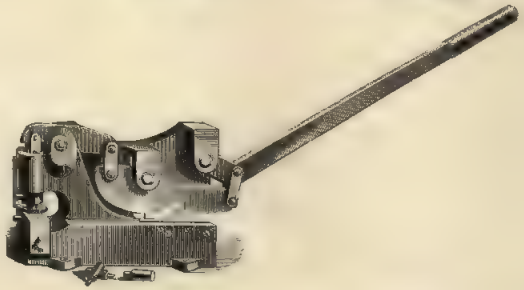
MORLEY-MURPHY HARDWARE COMPANY, GREEN BAY, WIS.



SAMSON PUNCH. BOLT FASTENED, WROUGHT IRON LINKS.

We warrant it to punch No. 9 Iron with Stay Bolts and No. 12 without Stay Bolts. Depth of Gap 15 inches, will center on 30 inch Sheets without Stay Bolts, and 7 inch Sheets with Stay Bolts. Accompaning each Machine are three sets of Dies and Punches, viz., $\frac{1}{8}$, $\frac{3}{16}$ and $\frac{1}{4}$ inch.

No. 5, Improved Samson Punch, Weighs 95 pounds, Each, $20 00



COMBINED SHEAR AND PUNCH.

These Machines are suitable for both Cutting and Punching Metal. They may be used for cutting $\frac{1}{8}$ inch Iron and $\frac{3}{16}$ and $\frac{1}{4}$ inch narrow bars.

Four Punches are put up with No. 1, viz., $\frac{1}{8}$, $\frac{3}{16}$, $\frac{1}{4}$ and $\frac{5}{16}$ inch. Five Punches are put up with No. 2, viz., $\frac{1}{8}$, $\frac{3}{16}$, $\frac{1}{4}$, $\frac{5}{16}$ and $\frac{3}{8}$ inch.

No. 1, Shear and Punch, $4\frac{1}{2}$ inch cut, will punch $\frac{1}{8}$ inch Iron, Weighs 100 pounds, Each, $16 00

" 2, Shear and Punch, $5\frac{1}{2}$ inch Cut, will punch $\frac{5}{16}$ inch Iron, Weighs 120 pounds, Each, $20 00

BENCH SHEARS.

Nos.,	00	0	1	2	3	4	5	6
Bench, Cut Inches,	12	$10\frac{1}{2}$	9	$8\frac{5}{8}$	$8\frac{5}{8}$	8	7	6
Each,	$13 50	12 00	8 00	7 00	6 00	5 00	4 00	3 50

Elbow Bench, Cut 4 Inches, Each, $5 25

" " Extra Heavy, Cut 6 Inch, " 12 00

" " Double Extra Heavy, Cut $7\frac{1}{2}$ Inches, will Cut No. 12 Iron, " 25 00

MORLEY-MURPHY HARDWARE COMPANY, GREEN BAY, WIS.

TINNERS' STAKES.

Conductor Stake.

Round Head Stake.

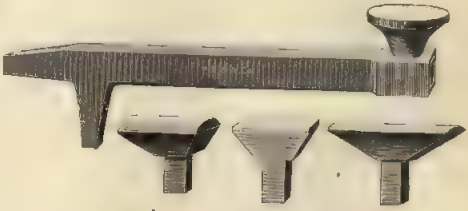
Bevel Edge Square Stake.

WROUGHT IRON, WITH STEEL FACES.

No. 1, **Conductor,** Turned, Large End 15 Inches, Small End 11½ Inches Long, Weighs 35 lbs., - Each, $4 00
" 2, **Conductor,** " " " 14 " " " 10 " " " 25 " " 3 00
Round Head, Weighs 11 pounds, - - - - - " 1 25
No. 1, **Bevel Edged Square,** Face 8 x 5 Inches, Weighs 15 pounds, - " 6 00
" 2, **Bevel Edged Square,** " 2½ x 4½ " " 13 " - - " 5 00

DOUBLE SEAMING STAKE.

No. 1, Double Seaming, Large End 17 Inches, Small End 12 Inches, Weighs 34 lbs., Each, $9 00



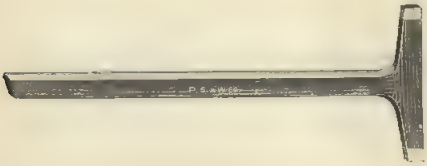
DOUBLE SEAMING STAKE WITH FOUR HEADS.

Double Seaming, with 4 Heads, Weighs 85 pounds, - - Each, $9 00
Extra Heads for Double Seaming with 4 Heads, - - Each, $1 50

HOLLOW MANDREL STAKE.

Hollow Mandrel, 3 feet 4 inches Entire Length, Weighs 45 pounds, - - Each, $5 50
Hollow Mandrel, Adams' Cast Iron, 36 inches long, Weighs 38 pounds, - - - " 5 00
Hollow Mandrel, " " " 40 " " " 44 " - - - " 4 50

TINNERS' STAKES.



MANDREL STAKE.

Wrought, with Steel Faces.

No 00, Mandrel, 5 feet Long to the Standard, Weighs 128 lbs., - Each, $10 00
" 0, Mandrel, 3 feet 4 inches Long to the Standard, Weighs 87 lbs., Each, 6 00
" 1, Mandrel, 2 feet 10 inches Long to the Standard, Weighs 44 lbs., Each, 5 00
" 2, Mandrel, 2 feet 6 inches Long to the Standard, Weighs 37 lbs., Each, 4 00
" 3, Mandrel, 2 feet 3 inches Long to the Standard, Weighs 31 lbs., Each, 3 00

HATCHET STAKES.

No. 1,	Hatchet,	Blade	16	inches	Long,	Weighs	14	pounds,	-	Each, $5 00
" 2,	"	"	14½	"	"	"	12	"		" 4 25
" 3,	"	"	13	"	"	"	9	"	-	" 3 50
" 4,	"	"	11	"	"	"	6	"		" 2 75
" 5,	"	"	9	"	"	"	4	"	-	" 2 25
" 6,	"	"	7	"	"	"	3	"		" 1 75

BENCH PLATES.

IMPROVED BENCH PLATE, POLISHED.

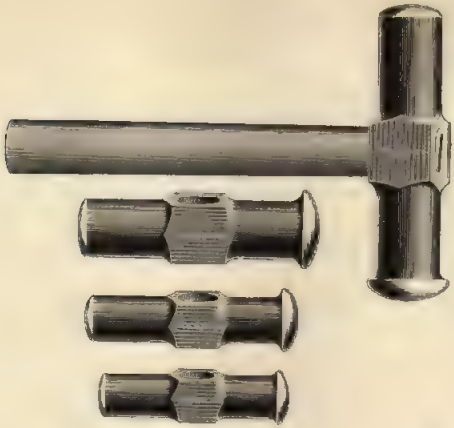
This new and improved Bench Plate is so made that it can be readily inserted in any Bench of ordinary thickness, and revolves so that different tools may be used in the same position.

No. 3, 9x9 inches, Weighs 18 pounds, - - Each, $3 50

CAST IRON, POLISHED.

No. 0,	48x12	inches,	Weighs	94	pounds,	Each, $9 00
" 1,	37x 8	"	"	50	"	" 5 00
" 2,	30x 8	"	"	37	"	" 3 00

MORLEY-MURPHY HARDWARE COMPANY, GREEN BAY, WIS.



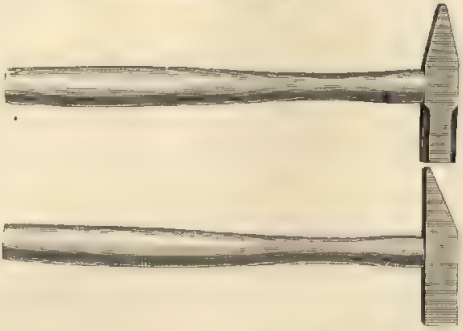
HAMMERS.

RAISING HAMMERS.

Nos.,	1	2	3	4
Weight, lbs.,	5	3¼	2¼	1¼
Each, -	$2 25	1 75	1 25	75
Handles,	-	-	Each, $1 25	

PLANISHING HAMMERS.

Planishing Hammers, of different sizes and weights, - Per pound, $1 00



RIVETING HAMMERS.

No.					
0, Heavy Work,	Bright, 1½ in.,	Handled,	Each,	$1 30
1, Sheet Iron,	" 1⅛ "	"	"	82
2, Tin, etc.,	" 1 "	"	"	70
3, "	" ⅞ "	"	"	57
4, "	" ¾ "	"	"	45
5, "	" ⅝ "	"	"	40

SETTING HAMMERS.

No.					
1, Setting,	Bright, 1⅛ inch,	Handled,	Each,	$0 82
2, "	" 1 "	"	"	70
3, "	" ⅞ "	"	"	57
4, "	" ¾ "	"	"	45
5, "	" ⅝ "	"	"	40

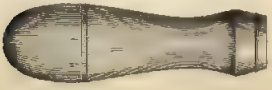
SOLDERING COPPERS.

DRAWN COPPER BOLTS, FORGED.

With Square Points for common use. With Flat Points for bottoms. Hatchet Coppers for Plumbers' use.

Our Coppers are made of Drawn Copper Bolts of the best quality, and are shaped under a hammer; by this method they are as solid as the metal can be made. They should not be compared with such as are cast from copper ingots.

Nos., - -	1	1½	2	2½	3	4	5	6	7	8	10	12	14
Weight per pair, pounds, -	1	1½	2	2½	3	4	5	6	7	8	10	12	14
Soldering Coppers, -											Per pound, $0 40		



SOLDERING COPPER HANDLES.

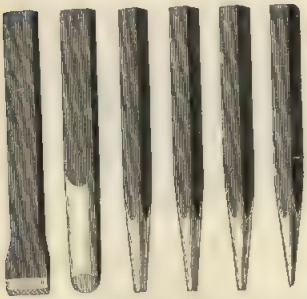
COPPER HANDLES. WIRED.

Soldering Copper Handles, - - Per dozen, $0 50

HOLLOW PUNCHES.

FORGED STEEL.

All Sizes to and including 1¾ inch Diameter, Round,	Per inch,	$1 00
All Sizes above 1¾ inch Diameter, Round, -	"	1 25
Oval, - - - - - -	"	1 50



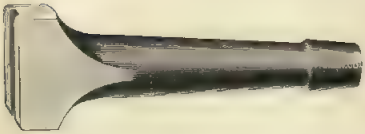
SOLID PUNCHES.

Set Solid Punches—4 Punches, 2 Chisels, -	Per set,	$0 72
Square, Cast Steel, Nos., 0, 1, 2, 3, 4, 5, 6, 7, 8, and Prick,	Each,	12
Solid Punches, Assorted, - -	Per dozen,	1 44

Full Size of Ends.

Nos., 00 0 1 2 3 4 5 6 7 8 9

GROOVING TOOLS.

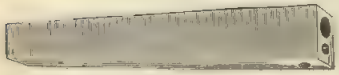


HAND GROOVER.

Forged Steel.

Nos., -	00	0	1	2	3	4	5	6	7	8
Groove, inch,	½	7/16	13/32	3/8	5/16	¼	3/16	5/32	1/8	1/16
Each,	$0 75	75	63	63	50	50	37	37	25	25

RIVET SETS AND HEADERS.



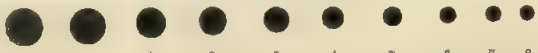
P. S. & W. CO.'S TINNERS' FORGED STEEL RIVET SET.

Nos., - -	00 & 0	1 & 2	3 & 4	5 & 6	7 & 8
Polished and Blued, Each,	$0 75	63	50	37	32

COMMON POLISHED.

Nos., - -	00 & 0	1 & 2	3 & 4	5 & 6	7 & 8
Common, Polished, Each,	$0 75	63	50	37	32

Full Size of Holes.



Nos., 00 0 1 2 3 4 5 6 7 8

Nos.,	00	0	1	2	3	4	5	6	7	8
For Iron Rivets,	14	10 and 12	8	6	4 and 5	2½ and 3	1¾ and 2	1¼	1¼ lbs.	10 and 12 oz.
For Copper Rivets,		5	6	7	8	9	10 and 11	12	13	14

MORLEY-MURPHY HARDWARE COMPANY, GREEN BAY, WIS.

MORLEY-MURPHY HARDWARE COMPANY, GREEN BAY, WIS.

ROOFING TOOLS.

Improved Tongs. Common Tongs.

ROOFING TONGS.

The Improved Roofing Tongs are so made that a single pair may be easily adjusted to turn any size edge from ¾ up to 3 inches by simply adjusting the Thumb Screws and sliding the Gauge to the desired width.

Improved Roofing Tongs, Steel, Per pair, $4 00

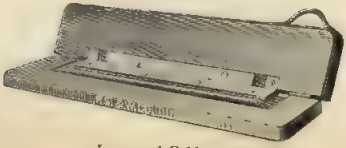
Common Roofing Tongs, Steel, Sizes ½, ¾, 1, 1¼, 1½, 1¾ inch, Per set, 2 pairs, $6 00

GUTTER TONGS.

Gutter Tongs, - Per pair, $5 00

ROOFING DOUBLE SEAMERS.

Roofing Double Seamers, to match Roofing Tongs, Per set, 2 pairs, $1 75



Improved Folder.

WOOD ROOFING FOLDERS.

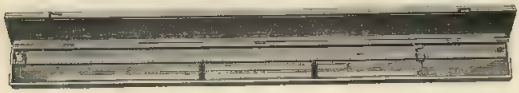
Roofing Folder, Common, 30 inch, Wood, Each, $3 50
Roofing Folder, " 20 " " " 2 50
Roofing Folder, Improved, 30 " " with Gauge, " 5 00
Roofing Folder, " 20 " " " " " 3 50
Roofing Folder, Adjustable, for 20 or 30 inch, Wood, with Gauge, - " 6 00

TINNERS' RULES.

THE MAGIC PATTERN RULE.

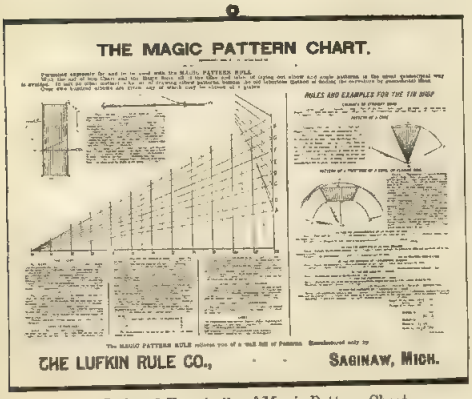
A Perfect Boon to Tinners and Sheet Metal Workers, saving its cost Many Times a Year in any Shop.

The Magic Pattern Rule is more properly a combination labor saving instrument, for relieving the Sheet Metal Worker of many tedious operations, incidental to the demands on him coming up in every day shop practice. It will be appreciated by the skilled artisan and the apprentice and is easily understood and operated.



The Magic Rule in Its Case.

Magic Rule and Chart, Complete, in Hinged Wooden Case, Each, $5 00



Reduced Fac-simile of Magic Pattern Chart.

MAGIC CHART.

Chart is 19 x 23 inches, Mounted on Linen, Very Durable.

Magic Chart only, by mail, Each, $0 50

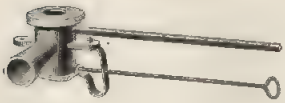
TINNERS' STEEL CIRCUMFERENCE RULES.

	Plain.	Nickel Plated.
3 foot, Each,	$2 50	$3 00
4 " "	3 00	3 50

MORLEY-MURPHY HARDWARE COMPANY, GREEN BAY, WIS

TUYERE IRONS.

NORTON'S PATENT.



To regulate the blast, turn the Large Rod; the cinders and ashes may be removed by drawing out the Small Rod, which opens the Slide, the Levers and Spring are readily changed to either side, for right or left hand use. Weight, about 27 lbs

Each

Norton's Patent Tuyere Irons $2.00

WARREN'S PATENT.

The blast is regulated by simply revolving the Ball, which has three unequal sides, open the Bottom Valve, and all the cinders and ashes will drop out. Weight, about 31 lbs

Each

Warren's Patent Tuyere Irons $2 20

SINGLE DUCK'S NEST.

Each

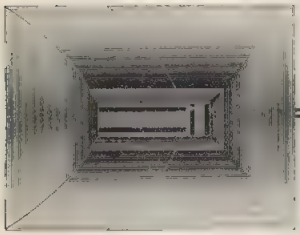
No. 5. Single, Weight 12 lbs. $0.70

DOUBLE DUCK'S NEST.

Each

No. 10. Double, Weight 17 lbs. $1.00

THOMPSON EXTENSION.



Thompson Extension Fire Tuyere Irons

Saves coal, saves time, saves money. Especially good for plow work, tire setting, long welds, and all heavy work.

Fire bed, 15 x 20 in.; depth, 5½ in., weight, 50 lbs.

Any size fire 2 in. up to 14 in. in length may be obtained with this tuyere.

This Tuyere is composed of the following parts: Grate with four slots as shown in the cut, two running crosswise remaining open all the time, and two running lengthwise and which are so arranged that they can be varied in size, thus controlling the length of the fire; this is accomplished by moving the far end of the fire bed in or out by means of the long rod shown in cut.

Each

..... $7 00

FIRE BED AND TUYERE.

ROOT'S NEW ACME.

Directions for Setting—Construct forge with inside cross walls 12½ in. in the clear for No. 3 and 16 in. in the clear for No. 4; the space below fire bed must be left entirely open to permit free circulation of air: after fire bed is placed, the hearth should be joined up to it on all sides as high as the top.

Each

No. 3. 14¼ in. Square by 11½ in. Deep; Weight 63 lbs., $7.15

No. 4. 18 in. Square by 12 in Deep; Weight 80 lbs.... 8.25

CHAMPION "WHIRLWIND" BLAST, ANTI-CLINKER, HEAVY NEST.

It increases the output of the Blacksmith Fire from 10 to 15 per cent., and saves at least 10 per cent in coal, by consuming all the heating elements in the coal This is a Tuyere Iron that should be used in every Blacksmith Fire.

Each

No. 400. Champion Whirlwind Blast ..... $. . .

TUYERE IRONS.

GLOBE.

	Each
With Plate, Weight 50 lbs.	$2.25
Without Plate, Weight 24 lbs	1.10
Plates Only, Weight 26 lbs.	1.30

GALLAGHER'S.

The Superior Combination Tuyere Iron and Fire Pot possesses many advantages over the old style Tuyere Iron.

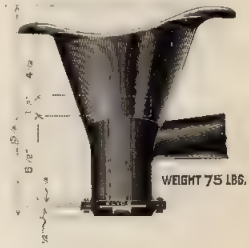
It is easily adjusted, requiring neither Fire Brick nor Fire Clay.

It is easily adjusted to the forge and does not require a skilled mechanic to place it in position.

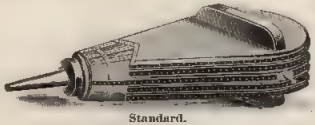
Being a smooth surface of cast iron, cinders and clinkers will not stick to and burn it out.

A Tuyere Iron that will wear.

	Each
Gallagher's Tuyere Irons	$5.00



BLACKSMITHS' BELLOWS.



Standard.

Width, in.	24	26	28	30	32	34	36	38	40	42	44
Each	$10.00	11.00	12.00	13.00	14.00	16.00	18.00	20.00	23.00	27.00	32.00

Extra Long.

Width, in.	24	26	28	30	32	34	36	38	40	42	44	46	48	50
Each	$12.00	13.00	14.00	15.00	17.00	18.00	21.00	24.00	28.00	34.00	40.00	45.00	50.00	60.00

BLOWERS.

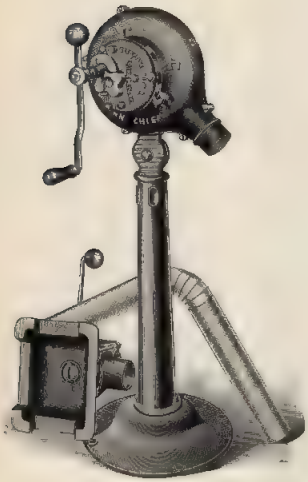
ROOT'S ACME HAND.

Equal to a 60 in. Bellows. Weight 75 lbs.

Occupies a space less than a foot square of floor surface.

	Each
No. 3. Without Tuyere Iron	$25.00
No. 3. With Tuyere Iron	30.00

BLOWERS.



ROYAL WESTERN CHIEF.

Superior Points.

No Belt, no Clutches, no Ratchets.

The blower case oscillates on its bearing, permitting nose of case to point down or out or up, as may be desired.

The crank turns to right or left, as suits operator; blast same force.

The gears are all cut as accurately as those of a watch.

The gear case is oil tight and dust proof.

The bearings are easiest running and most serviceable of any method known.

The blast is powerful, positive, and takes less labor to operate than other blowers.

The after-blast is strong and lasting

The column stand and iron base give it a solid, non-trembling foundation.

The room it takes is less than any other blower.

Fan 12 in., Weight 65 lbs

	Each
Size H. Including Pipe and Tuyere Iron	$28.00

CHAMPION STEEL BLACKSMITHS'.

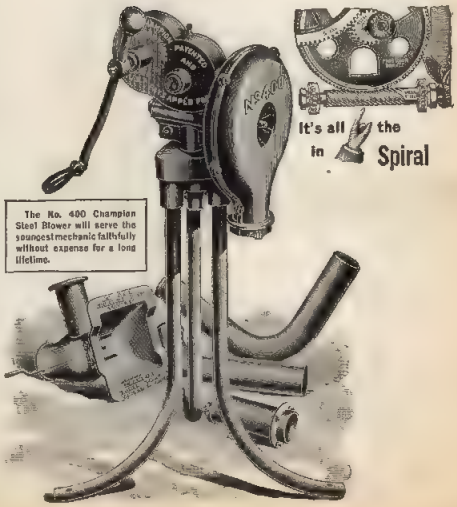
Made with Ball Bearings Only.

We guarantee a strong, regular, positive blast, equal to a Blower run by power, with one-fourth the labor required to operate any other Blower, Forge or Bellows.

We guarantee the No. 400 Steel Blower to increase the earnings or income of every fire from five to ten times the amount of its original cost every year that it is used over and above any other means of making hand blast.

Made for right hand fires regular. If wanted for left hand fires, it will be furnished if specially ordered.

	Each
No. 400. Champion Steel Blacksmith Blower, Fan 12 in. Diameter. Weight 100 lbs., with Tuyere Iron and Piping complete.....	$37.00

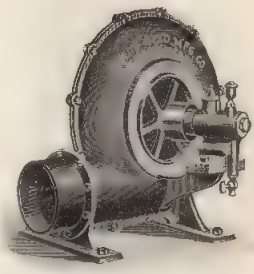


SMALL PRESSURE BLOWERS.

These Blowers are adapted to forge fires and small, light cupola work. They are very strong and durable, smooth running, and handsome in appearance.

Sizes P3 and P5 have grease cup in addition to oil cup, so that should oil cup run dry the grease cup will continue to lubricate and prevent heating. Built for service

Speed 2,800 to 3,200 revolutions per minute.

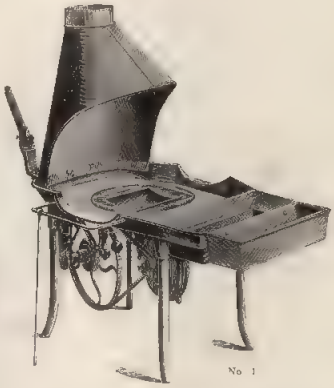


No. of Blower	Height Inches	Diam. of Inlet Inches	Diam. of Outlet Inches	Diam. of Pulley Inches	Face of Pulley Inches	Revolutions per min. 2 oz Blast for Boiler Fires	Revolutions per min. 4 oz. Blast for Forge Fires	No. of Forge Fires	Sq. ft. of Boiler Grate Surface Supplied by Blower	Each
P1	10	3⅝	2¾	1⅞	1¼	3675	4640	1	2	$12 00
P3	18	5¾	4¾	3	2½	2600	3600	4	6	20 00
P5	24	7½	7½	4⅝	3¼	1928	2682	7	10	33 00

FORGES.

CHAMPION.

WESTERN CHIEF



No. 1

No. 150 Champion Agricultural Lever Forge has been on the market for over 10 years and has established for itself a demand that would surprise the wildest calculator. It fully meets the demands of Farmers and all kinds of Light Repairing work; size of hearth 18 inches in diameter, 4 inches deep, Fan 3 inches in diameter, weight 65 lbs., height 30 in.

	Each
No. 150. Champion Agricultural Lever Forge with Shield,	$14.00

Brass Boxes and Oil Cups throughout; Shafts and Boxes taper fitted; all Boxes oscillate in their bearings and are self-adjusting; a positive, noiseless, never slipping clutch; this forge has a capacity for the heaviest work.

Fan 14½ in., hearth 33½x46 in., height 30 in., weight 300 lbs., length over all 54 in.

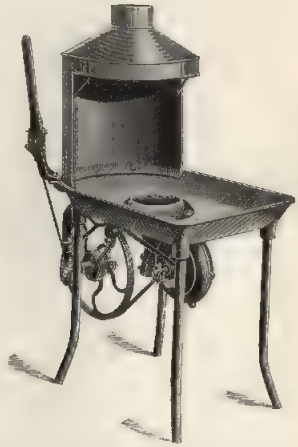
	Each
No. 1. With Coal or Water Tank	$50.00
No. 1. With Extra Water Tank	55.00

FORGES.

WESTERN CHIEF.

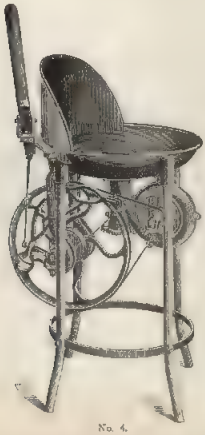
No. 2.

Suitable for Bridge Builders, Railroads, Quarries, Well Drivers, Boiler Makers, Etc.



No. 3

Suitable for Boiler Makers, Horseshoers, Small Blacksmith Shops, Etc.



No. 4.

A Splendid Forge for Mines, Quarries, Bridge Builders, Railroad and Outdoor Repair Work.

NO. 2.

This Forge has a capacity for heating iron 3 in. through, and is especially adapted to bridge builders, railroads, well drivers, quarries or any outdoor work where a hood is not needed to carry off gas and smoke It is equipped with Brass Boxes and Oil Cups throughout, also Noiseless Adjustable Steel Friction Clutch.

Fan, 12 in.; Height, 30 in.; Hearth, 23x35 in.; Weight, 145 lbs.

Each

No. 2. Western Chief Forges $36.00

NO. 3.

This Forge has a capacity for heating iron 3 in. through, and is especially adapted to inside or shop work, and so arranged that all gas, smoke and sparks are conducted away. It is equipped with Brass Boxes and Oil Cups throughout, also Noiseless Adjustable Steel Friction Clutch. An excellent Forge for horseshoers, small blacksmith shops, boiler makers, etc.

Fan, 12 in.; Height, 30 in.; Hearth, 23x35 in.; Weight, 150 lbs

Each

No 3 Western Chief Forges $40.00

NO. 4.

This Forge has a capacity to heat iron 2 in. through, and is very desirable for all kinds of outdoor work, where a light, strong, portable forge is required. It is equipped throughout with Brass Boxes and Oil Cups, also Noiseless Adjustable Steel Friction Clutch. Is of convenient size for moving from place to place.

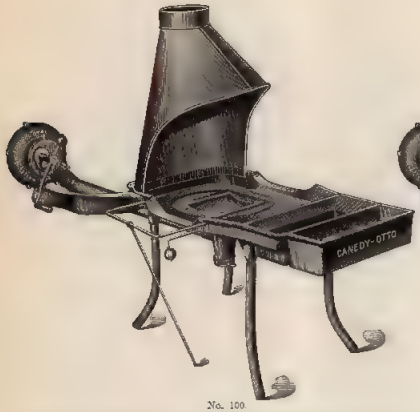
Fan, 9 in., Height, 33 in.; Hearth, 22 in.; Weight, 95 lbs.

Each

No. 4. Western Chief Forges $24.00

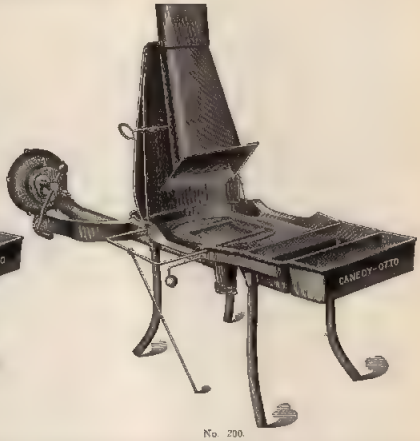
FORGES.

ROYAL WESTERN CHIEF.



No. 100.

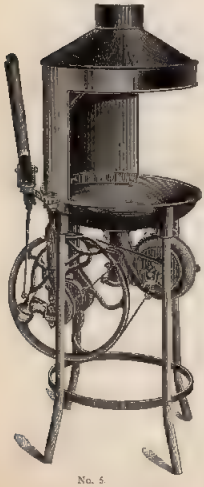
For Use of Large Blacksmith, Wagon, Plow, Railroad Shops, Etc., Where Heavy Work is Done, and a First-Class Forge and Fire are Needed.



No. 200.

With Improved Smoke Conveyer, Royal Blower and Western Chief Standard Hearth.

WESTERN CHIEF.



No. 5.

For Toolmakers, Bicycle Repair Shops, Jewelers, Dentists, Tin Shops, Farmers, Etc.

NO. 100.

In this Forge is combined the "Royal" style of Blower, with Cut Gears and oil-tight Case, with the Western Chief Standard Hearth, having perfect fire-pot, goose nest to securely hold clay, and tuyere ball furnishing side and center blast—all separate from hearth and arranged to withstand the intense heat. The heaviest as well as lightest kind of work is conveniently handled. The blast is direct from blower to fire, easy to operate and equal in volume to any demand required. We guarantee it fully.

Hearth, 33⅛ x 46 in.; Fan, 12 in.; Height, 30 in., Weight, 275 lbs.; Length over all, 54 in.

		Each
No. 100.	With Coal or Water Tank	$50.00
No. 100.	With Extra Water Tank	55.00

Always shipped without Extra Tank, unless so ordered.

NO. 200.

In this Forge is combined the three most perfect devices, viz: "Royal" style of Blower, with Cut Gears and Oil-tight Case, the New Improved Smoke Conveyer and the Western Chief Standard Hearth, with perfect fire-pot, goose nest to securely hold clay, tuyere ball furnishing side and center blast—all separate from hearth and arranged to withstand the intense heat; making the most perfect and complete Forge on the market, its operation is easy, blast is very powerful and ample for the heaviest kind of work; it has no equal for all-round serviceable Forge for Railroad, Blacksmith Wagon, Plow or Country Shops.

Hearth, 33½ x 46 in.; Fan, 12 in.; Height, 30 in.; Weight, 275 lbs.; Length over all, 54 in.

		Each
No. 200.	With Coal or Water Tank	$55.00
No. 200.	With Extra Water Tank	60.00

NO. 5.

Has capacity to heat iron 2 in. through and especially adapted to tool makers, jewelers, dentists, farmers, small repair shops, etc. Is so arranged that all gas, smoke and sparks are conducted away; it is equipped throughout with Brass Boxes and Oil Cups, also Noiseless Adjustable Steel Friction Clutch.

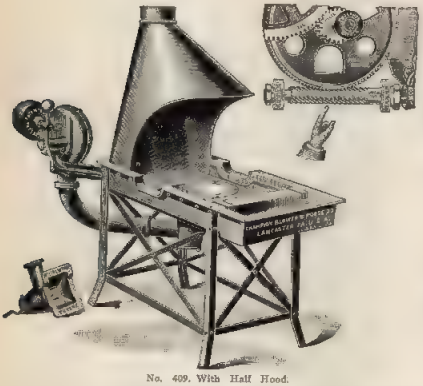
Fan, 9 in.; Height, 33 in.; Hearth, 22 in.; Weight, 100 lbs.

		Each
No. 5.	Western Chief	$27.00

FORGES.

CHAMPION STEEL BLACKSMITHS'.

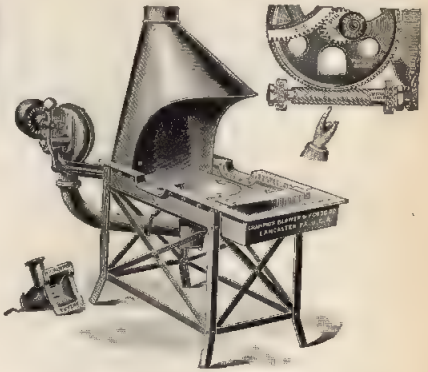
Made with Ball Bearings Only.



No. 409. With Half Hood.

CHAMPION STEEL HORSESHOERS'.

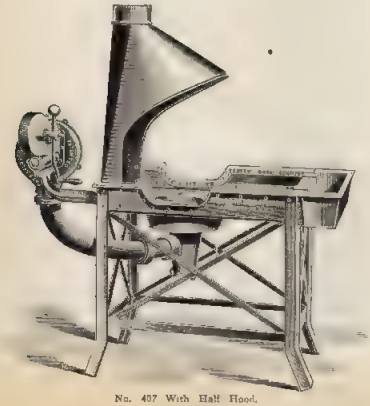
Made with Adjustable Ball Bearings Only.



No. 408. With Half Hood.

No. 409. Champion Steel Blacksmith Forge has been designed and substantially constructed from structural steel to comply with ease any demand that can be made to fully meet any requirements that a Blacksmith fire can be called on to perform in railroad shops, large and heavy wagon shops, plow works, country shops, doing all kinds of heavy work, as well as any other shop where a strictly first-class all-around blacksmith fire is wanted. The easy running and noiseless 3-piece mechanical construction for producing the blast is truly a wonderful invention, making hopes of generations a reality by producing a blast strong, regular and positive, in every way fully equal to a blast produced by a blower run by power. The machinery is all made of tool steel and phosphorus bronze, machined and cut from the solid metal, all being enclosed in an oil-tight case, there being no belts or friction. It is fitted up all through with Ball Bearings.

		Each
No. 409.	Hearth, 30 x 40 in.; Height, 30 in., Fan, 12 in. in Diameter, Weight, 250 lbs.	$70.00
No. 409.	With Water Tank	75.00
No. 408.	Champion Steel Horseshoer's Forge with Half Hood, Hearth, 30 x 36 in., Height, 30 in., Fan, 12 in. in Diameter, Weight 225 lbs.	65.00
No. 408.	With Water Tank	70.00



No. 407 With Half Hood.

CHAMPION STEEL MACHINISTS'.

Made with Ball Bearings Only.

No. 407. Champion Steel Machinists' Forge, with Half Hood, for inside work, used by Machinists, Plumbers, Miners, Marble Workers, Millers, Railroad Repair Shops, Locksmiths, Planters and Manufacturers; a very convenient and economical Forge; its structural steel construction is designed for lightness, stiffness and durability, the crank turns either direction to produce the blast.

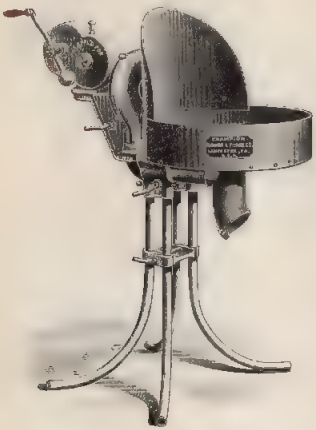
Hearth, 30 x 30 in.; Height, 30 in.; Fan, 10 in. in diameter; Weight, 175 lbs

		Each
No. 407.	Champion Steel Machinist's Forge	$60.00
No. 407.	With Water Tank	65.00

FORGES.

CHAMPION STEEL RIVET.

Made with Ball Bearings Only.



No. 401.

CHAMPION IMPERIAL BLACKSMITH LEVER.

No. 81. With Half Hood Only

CHAMPION IMPERIAL MACHINISTS' LEVER.

No. 83. With Half Hood.

NO. 401.

No. 401 Champion Steel Forge is truly an ingenious and great invention, for both employer and employee. The marvelous 3-piece mechanical construction for producing such a wonderful, regular and continuous positive blast with such great ease, can indeed be easily classed as a wonder of the 20th century. Nothing was ever seen to even approach it for a strong, positive, regular blast. The forge is constructed from structural steel, making it strong, stiff and light. The machinery is all inclosed in an oil-tight casing, and entirely noiseless. It has no belts or friction. It is fitted up all through with ball bearings. It can be taken apart for transportation and again set up for use in several moments. This forge is adapted for Government use, elevated and steam railroads, bridge and tank builders, miners and prospectors, boiler repairers, or any portable work requiring compactness and lightness, with a strong blast. If necessary, it will produce blast to weld 3½ to 4-in. iron in ten minutes. The crank to produce the blast can be turned either way

Hearth 18 in. in diameter, Height 30 in., Fan 9 in. in diameter, Weight 90 lbs

		Each
No. 401.	**Champion Steel Rivet Forge**	$35 00

NO. 81.

No. 81. Champion Imperial Lever Blacksmith Forge has been designed and constructed to meet the demands of a cheaper lever forge, the Imperial lever motion is a very simple device; it is a self-acting ratchet, no springs nor anything to get out of order; the three self-acting pawls or ratchet dogs are made of hardened tool steel, which will stand years of hard work without showing wear, having been used on smaller sized forges by us for 10 years and on thousands of forges with perfect satisfaction, therefore, can give it the highest recommendation for durability and easy working, the hearth of this forge is made large and commodius, the fan has a direct blast into the fire and will produce a large and steady blast for heavy and all kinds of blacksmith work, all the bearings have oil cups and in every respect it is a well-finished forge

Hearth, 32 x 45 in.; Height, 30 in.; Fan, 14½ in.; Weight 250 lbs.

		Each
No. 81.	**Without Water Tank**	$50.00
No. 81.	**With Water Tank**	55 00

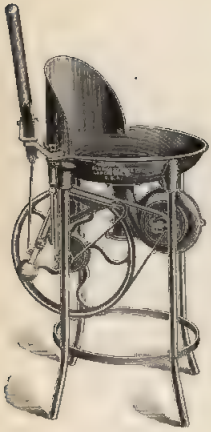
NO. 83.

No. 83. Champion Imperial Lever Forge has the same lever motion as No. 81, it being made to meet the demands of a cheaper medium lever forge, but will say, in all confidence, that it is the best forge on the market. The bearings all have oil cups, and in every respect is a well-finished forge, with large hearth and fan. This forge is adapted for Machinists, Plumbers, Miners, Marble Workers, Millers, Railroad Repair Shops, Locksmiths, Planters, etc.

Hearth, 23 x 35 in.; Height, 30 in.; Fan, 12½ in.; Weight, 130 lbs.

		Each
No. 83.	**Champion Imperial Machinists Forge**	$40 00

FORGES.



No. 85. With Shield

CHAMPION IMPERIAL LEVER RIVET.

No. 85 Champion Imperial Lever Rivet Forge with shield has been on the market for 10 years, and in the hands of thousands of users who pronounce it a first-class forge. The lever motion on this forge is the same as on No. 81. All bearings have oil cups, and is handsomely finished. It is a strong and light forge for all kinds of light portable work, also is a very desirable forge for inside use, such as Jewelers, Bicycle Repairers, heating and tempering tools in connection for the use of tank builders, Miners and Prospectors, making repairs on Boilers, Bridges, by Elevated Railroad Builders, Farmers, etc. It is easily carried about the country, being light, strong and compact.

Hearth 22 in. Diameter, Height 33 in., Fan 9½ in., Weight 80 lbs.

Each

No. 85. Champion Imperial Lever Rivet Forge $24 00

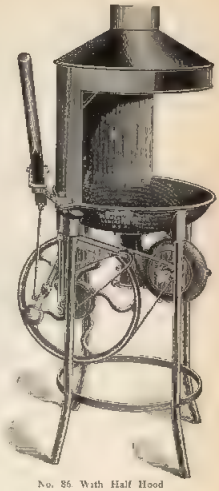
CHAMPION IMPERIAL TOOLMAKERS' LEVER.

No. 86 Champion Imperial Lever Toolmakers' Forge with Half Hood is precisely the same in Lever Motion, construction and finish as No. 85. It is adapted for tempering tools, for Elevated Railroads, Tank and Bridge Builders, Miners, Prospectors, Boiler Repairing, Farmers, etc.

Hearth 22 in. in Diameter, Height 33 in., Fan 9½ in., Weight 90 lbs.

Each

No. 86. Champion Imperial Toolmakers' Lever Forge $27 00



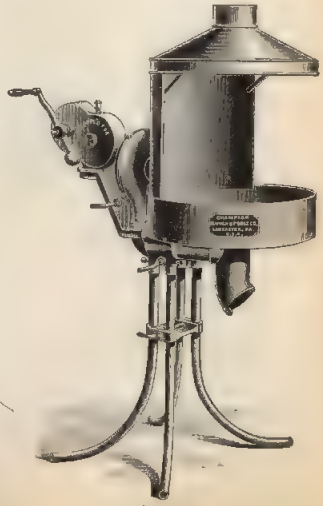
No. 86 With Half Hood

THE CHICAGO FORGE.

A light, move-about, outdoor forge; suited to quarries, contractors, mines, etc. Fan 8 in., Hearth 18 in., Height 30 in., Weight 65 lbs.

Each

No. 150. Chicago Forge $16.00



No. 402

THE CHAMPION STEEL TOOLMAKERS

For inside work for Toolmakers, Jewelers, Bicycle Repairers, Tempering, Tank Builders, Miners, etc. Hearth 18 in., Height 30 in., Fan 9 in., Weight 90 lbs.

Each

No. 402. Champion, with Half Hood $38.00

BLACKSMITHS' MANDRELS.

COMMON CAST IRON.

Nos	1	1½	2	3	4
Height, in.	32	40	48	52	54
Base, Diameter, in.	8	10	10	14	16
Point Diameter, in.	1	1	1	1	2
Weight, lbs.	55	90	115	140	200
Per lb	$0.04	.04	.04	.04	.04

GREEN RIVER PATENT TAPER.

Made in One Piece, the groove gives room for grasping work with the tongs. When a ring with an eye-bolt is being made, the eye and bolt lie in the groove while the ring is being rounded up. The smallest has ears for fastening to bench

Figure	649	653	654
Height, in.	36	47	58
Base Diameter, in.	8	10	14
Point Diameter, in.	1¼	2	2¾
Each	$4 25	7.00	12.00

SWAGE BLOCKS.

CAST IRON.

Nos. 1, 2 and 3

No. 1	Measures 3⅝x10	x14	in.,	weight about 100 lbs
No. 1½	Measures 4 x12½x12½		in.,	weight about 100 lbs.
No. 2	Measures 3⅞x11	x15	in.,	weight about 125 lbs.
No 2½	Measures 4 x15	x15	in.,	weight about 160 lbs
No. 3	Measures 4⅛x11	x15	in.,	weight about 145 lbs.
No. 3½	Measures 4¼x16	x16	in.,	weight about 190 lbs.
No. 4	Measures 4 x15	x15	in.,	weight about 185 lbs.
No. 4½	Measures 4½x18	x18	in.,	weight about 255 lbs.
No. 5	Measures 6 x24	x24	in.,	weight about 625 lbs

Per lb.

Cast Iron Swage Blocks $0.04

Nos. 4 and 4½

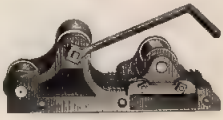
TIRE BENDERS.

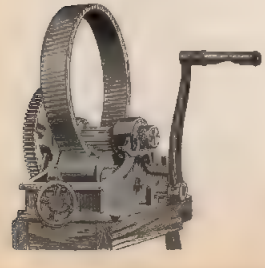
COMMON.

This machine is made with turned rollers and bearings, and will bend a 3¼ in. Tire or smaller to a circle of 30 in. Diameter, or larger.

Each

No. 1. With Crank $6 00





CHAMPION PERFECTED.

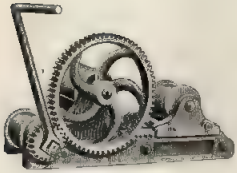
Is made very strong and durable; the body of the machine consists of one solid piece without bolt or nut, the rolls are turned true, and are adjusted by a screw as shown in cut; the size of circle ranges from 12 in. to 12 feet; tires can be trued up after welding. This Bender is not to be classed with the numerous low-priced machines in the market; and as one will last a lifetime, the additional expense is well invested. It is strictly a first-class machine.

Each

No. 21.	Will take 4x½ in tire not geared	$12 00
No. 22.	Will take 4x⅞ in tire, geared	19 00
No. 23	Will take 6x¾ in or 4x1 in. tire, geared	26 00
No. 24.	Same as No 23, with Countershaft and Pulleys for Power	35 00
No. 25.	Will take 6x1 in tire, Double Geared, Extra Heavy Bed	55 00
No. 26.	Same as No. 25, with Countershaft and Pulleys	65.00

TIRE BENDERS.

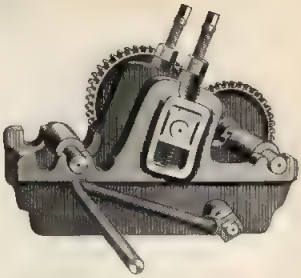
IMPROVED.



No 2 is made with Gear and Pinion, has turned rollers and bearings, and will bend Tire, 3¼ in. or smaller, to a circle 30 in diameter or larger

No. 2½ is made same as No. 2, but will bend 6 in. Tire or smaller to a circle of 30 in. diameter or larger.

		Each
No. 2.	With Crank	$7.00
No. 2½.	With Crank	8.50



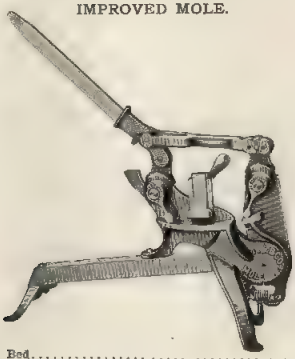
This machine is Double Geared, has turned rollers and bearings, is very strong and durable, and will bend 5 in. Tire or smaller to a circle 30 in. diameter or smaller.

In bending very heavy Tire, two Cranks may be used on opposite sides, thus giving double power.

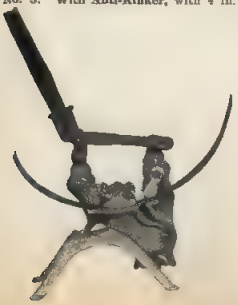
		Each
No. 3.	With One Crank	$10.50

TIRE SHRINKERS.

IMPROVED MOLE.



		Each
No. 3.	Without Anti-Kinker, with 4 in. Bed	$15.00
No. 3.	With Anti-Kinker, with 4 in. Bed	18.00



THE IDEAL.

The New Ideal Tire Shrinker is the most perfect Shrinker ever made. It has all the advantages of the old Mole Shrinker, to which is added the new and important adjustable or floating shoe for holding down the tire when upsetting, so as to prevent its kinking. The shoe also adjusts itself to the different thickness of tire, or it can be quickly removed if necessary

It has also been adapted particularly for Truck tire, and will shrink tire with a 2 foot 10 in. circle and larger, while the old Mole Shrinker will only shrink a 3 foot 6 in. circle and larger

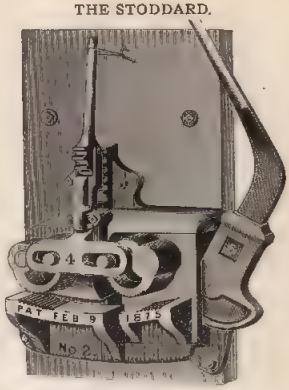
The advantages of the Ideal are:
The tire cannot kink.
The movement does the work.
It will shrink Heavy Wagon Tire.
It will shrink perfectly all kinds and thickness of tire
One man can operate it.
It will shrink light Buggy Tire.
It will shrink Truck Tire
It is the easiest handled.
It is the most durable

		Each
No. 4.	Ideal, with 4 in Bed	$18 00

TIRE UPSETTERS.

W. & B. 1900 MOLE PATTERN.

THE STODDARD.



W. & B. 1900 MOLE PATTERN.

	Each
Light, Compact and Strong, will upset Light Buggy, Wagon and Truck Tires, also all the work required of a tire upsetter, Capacity 4 in. Bed	$12.00

THE STODDARD.

		Each
No. 2.	A 4 in. Machine, will upset any Tire to 4 in. Wide	$32.50
No. 3.	A "Special" 4 in Machine, has 2 sets of loose jaws, can be adjusted for large and small circles, and also for upsetting axles up to 1¾ in. thick	26 00
No. 4.	A 6 in Machine This is for upsetting tires 6 in Wide	36 00
No. 5.	A "Special" 6 in. Machine, has 2 sets of loose jaws, can be adjusted for large and small circles, and also for upsetting axles up to 2 in. thick. This is for upsetting tires 6 in. Wide	45 00

SLITTING SHEARS.

No. 0.

THE BUFFALO.

These Buffalo Slitting Shears are of the armor-plate Construction, securing great strength with little weight and space. Nos. 1 and 2 are the same design as No. 3, and are provided with means for cutting round bar up to ½ in

These shears are what is known as the slitting Variety, the work clearing jaws and body of shear so that sheets of any width may be sheared in successive Cuts

No. 3.

SIZES AND DIMENSIONS.

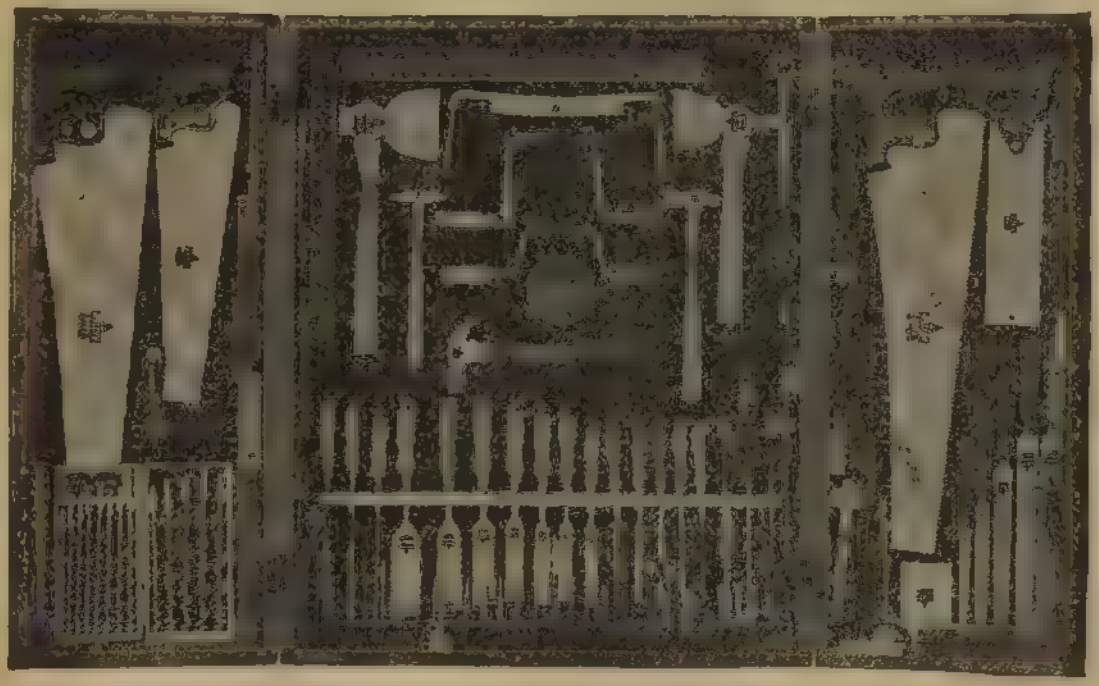
Nos.	0	1	2	3
Sheet Metal Capacity, Gauge	20	12	10	8
Bar Iron Capacity, in	½x3	¼x1½	½x3	⅜x2½
Height to Jaws, in	26½	30	31½	30
Weight, lbs	50	110	170	220
Each	$20.00	40.00	60.00	80.00

No. 0, is also built with a lever operated from the rear instead of front and can be furnished without stand, for fastening to bench.

		Each
No. 0A.	**Front Lever, without Stand,** Weight 26 lbs	$15.00
No. 0B.	**Back Lever, with Stand,** Weight 50 lbs	20.00
No. 0C.	**Back Lever, without Stand,** Weight 26 lbs	15.00

TRADE MARK:
E. C. SIMMONS' *KEEN KUTTER*,
REGISTERED.

TOOL CABINET AND WORK BENCH.



*KEEN KUTTER**

Each

No. K15—Wall Cabinet and Work Bench, Complete with 109 Highest Grade Tools.....$125.00

For Contents of Cabinet, see Page 146F.

TRADE MARK
E. C. SIMMONS' *KEEN KUTTER*.
REGISTERED.

TOOL CABINET AND WORK BENCH.

KEEN KUTTER

Each

No. K15—Wall Cabinet and Work Bench Complete with 109 High Grade Tools .. .. $1[illegible] 00

For Illustration, see Page 146E

WALL CABINET—Well Seasoned Hard Maple. Height 36 inches, Width, Open, 60 inches; Width, Closed, 30 inches; Depth, Open, 5 inches; Depth, Closed, 10 inches; Two Paneled Box Doors, Finished in Natural Colors, Varnished and Hand Rubbed; Brass Hinges and Cylinder Lock, with Two Steel Keys; Fitted with Racks and Hooks to Hold Tools.

WORK BENCH—Special High Grade; Length 52 inches; Width 22 inches; Height 32 inches; Top 2¼ inches Thick, with Recess at Back 7 inches Wide; Drawer 28 inches Long, 19 inches Wide, 6 inches Deep; Fitted with Quick Acting Iron Vises at Side and End; Iron Bench Stop; Has Special Sliding Trestle; Constructed of Kiln Dried Hard Maple; Side Vise has Jaws Lined with Hard Maple to Prevent Marring Work; Tall Vise has Steel Dog to use in Holding Large Work; Finished in Oil and Shellac.

Contents of No. K15 *KEEN KUTTER* Tool Cabinet:

1 *KEEN KUTTER* Rip Saw No. 88, 26 inch
1 *KEEN KUTTER* Hand Saw No. 88, 26 inch
1 *KEEN KUTTER* Panel Saw No. 38, 18 inch
1 *KEEN KUTTER* Cabinet Saw No. 91, 12 inch
1 *KEEN KUTTER* Compass Saw No. 93, 12 inch
1 *KEEN KUTTER* Hack Saw No. 188A.
1 *KEEN KUTTER* Saw Set No 195.
1 *KEEN KUTTER* Smooth Plane No. KK3.
1 *KEEN KUTTER* Jack Plane No. KK5
1 *KEEN KUTTER* Fore Plane No. KK6.
1 *KEEN KUTTER* Rabbet and Filletster No. KK78.
1 *KEEN KUTTER* Block Plane No KK15.
1 *KEEN KUTTER* Blue Brand Steel Square No. K100
1 *KEEN KUTTER* Blue Brand Try Square No. 120, 7½ inch.
1 *KEEN KUTTER* Drawing Knife, 8 inch.
1 *KEEN KUTTER* Bench Hatchet No. KNB2
1 *KEEN KUTTER* Shingling Hatchet No. KNO/1.
1 *KEEN KUTTER* Nail Hammer No. K511½
1 *KEEN KUTTER* Nail Hammer No. K513.
1 *KEEN KUTTER* Ball Pein Hammer No. KM3/0.
1 *KEEN KUTTER* Riveting Hammer No. KRO
1 Set *KEEN KUTTER* Special Auger Bits No. KS13.
1 *KEEN KUTTER* Expansion Bit (Large) No. KKL.
6 *KEEN KUTTER* Diamond Pat. Gimlet Bits, Assorted
1 *KEEN KUTTER* Ratchet Brace No. KKC10, 10 inch
1 *KEEN KUTTER* Plain Brace No. KP6, 6 inch
1 Each *KEEN KUTTER* Special Socket Firmer Chisel No. SB, ⅛, ¼, ⅜, ½, ¾, 1, 1½ inch
8 Each *KEEN KUTTER* Gouges, Socket Firmer, ¼, ½, ¾ inch.
1 Each *KEEN KUTTER* Screw Drivers, No. 50, 2-5-8 inch.
1 *KEEN KUTTER* Automatic Screw Driver No. K300
1 *KEEN KUTTER* Countersink for same.
1 Each E. C. Simmons' Special Slim Taper Files, 4 6 inch
1 Each *KEEN KUTTER* Mill Files, 6-10 inch
1 Each *KEEN KUTTER* Mill Files, each 6-10 inch
1 Each *KEEN KUTTER* Flat Bastard Files, 8-12 inch
1 *KEEN KUTTER* Half Round Cabinet File, 12 inch.
1 *KEEN KUTTER* Round File, 8 inch.
8 Apple Wood File Handles
1 *KEEN KUTTER* Reamer No. 115.
8 *KEEN KUTTER* Countersink No. 113
2 *KEEN KUTTER* Screw Driver Bits No. 103.
1 *KEEN KUTTER* Automatic Drill No. K3.
1 *KEEN KUTTER* Hand Drill No K4.
1 *KEEN KUTTER* Awl and Tool Set No. 50
1 *KEEN KUTTER* Scratch Awl No. 112
2 *KEEN KUTTER* Brad Awls No. 110
1 *KEEN KUTTER* Wing Divider No. 10, [illegible] inch.
1 *KEEN KUTTER* Combination Plier No 160, 6 inch
1 *KEEN KUTTER* Cutting Plier No. 50
1 *KEEN KUTTER* Carpenters' Pincers No. 808, 8 inch.
1 Each *KEEN KUTTER* Cold Chisel, ⅝, ¾ inch.
1 *KEEN KUTTER* Center Punch
1 Each *KEEN KUTTER* Nail Set No. 200, 1/32, [illegible], 4/32 inch
1 *KEEN KUTTER* Glass Cutter No. 10.
1 *KEEN KUTTER* Putty Knife No. 103
1 *KEEN KUTTER* Cabinet Scraper, 3x5 inches.
8 *KEEN KUTTER* Plumb and Level No. KK4, 26 inch.
8 *KEEN KUTTER* Carpenters' Apron No. K
1 *KEEN KUTTER* Mounted Oil Stone No. KM8
8 *KEEN KUTTER* Beveled Oil Slip No. KB[illegible]
7 Quire *KEEN KUTTER* Sand Paper, Assorted.
1 E. C. Simmons' Carpenters' Pencil No. 107.
1 Red Line Rule No 620, 2 ft.
8 Blue Brand Tape Line No. 6075, 75 ft.
1 Black Jack Wrench No. BJ, 10 inch.
8 Sure Grip Wrench No. 40.
1 Can Klincher Glue, 1 pint.
1 Special Mallet
1 Plumb Bob No. 11.
8 Sliding "T" Bevel No 25H, 10 inch.
1 M. [illegible] Gauge No 6[illegible]
8 Mortise Gauge No. 177.
8 Coping Saw No 1.
8 Tack Claw No. 46.
2 Coppered Steel Oilers.
1 Seavey's' Mitre Box No. 159.
8 Pair Malleable Carriage Clamps
1 Spool Wire.
8 Package Assorted Nails and Brads
1 Package Assorted Screws.
1 Package Tacks.

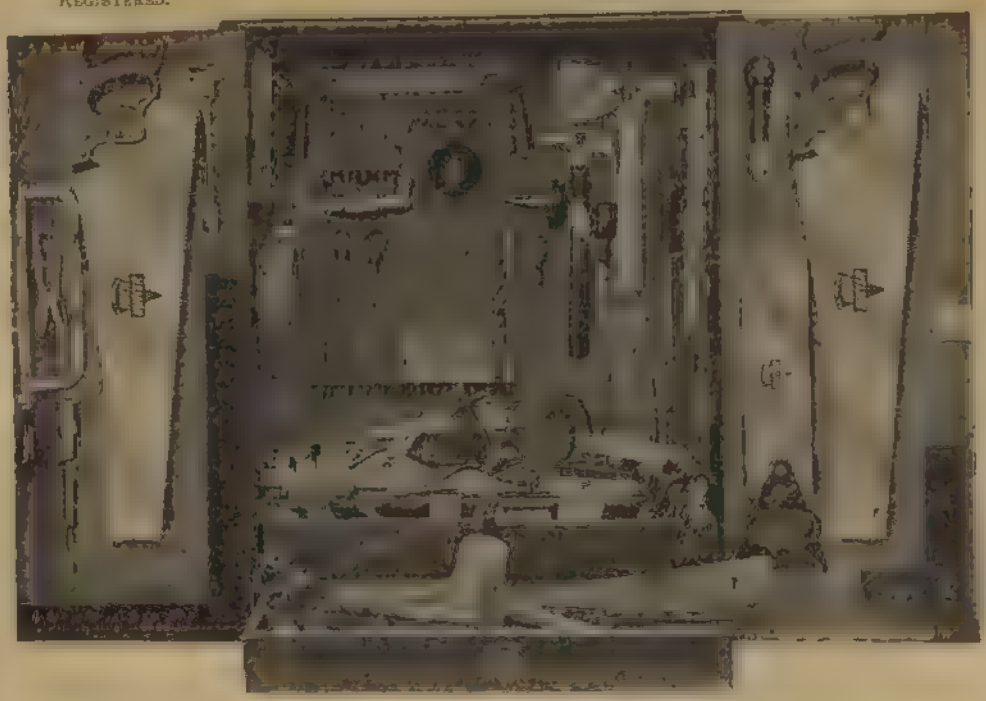
Cabinet and Work Bench in Separate Crates for Shipment. Tools Packed in Wood Box.

Weight of Cabinet, Bench and Tools, Crated for Shipment, about 350 lbs.

For Illustration, see Page 146E.

TRADE MARK
E. C. SIMMONS' *KEEN KUTTER*,
REGISTERED.

TOOL CABINETS.



Heavy Oak Wall Cabinet with Two Paneled Doors; Three Inside Drawers, 3 inches Deep; Antique Finish, Finely Varnished and Hand Rubbed; Brass Plated Ball Tip Steel Hinges, Two Brass Hinges on Back, Brass Cylinder Lock, with Two Steel Keys; Complete with Outfit of Highest Grade Tools

Dimensions of Cabinet:

Outside 32 inches High, 26 inches Wide, 10 inches Deep; Inside 30½ inches High, 24½ inches Wide, 8½ inches Deep.

*KEEN KUTTER**

	Each
No. K11W—*KEEN KUTTER** Wall Cabinet, Complete with 86 Highest Grade Tools, etc.	$70 00

Contents of No. K11W *KEEN KUTTER** Tool Cabinet:

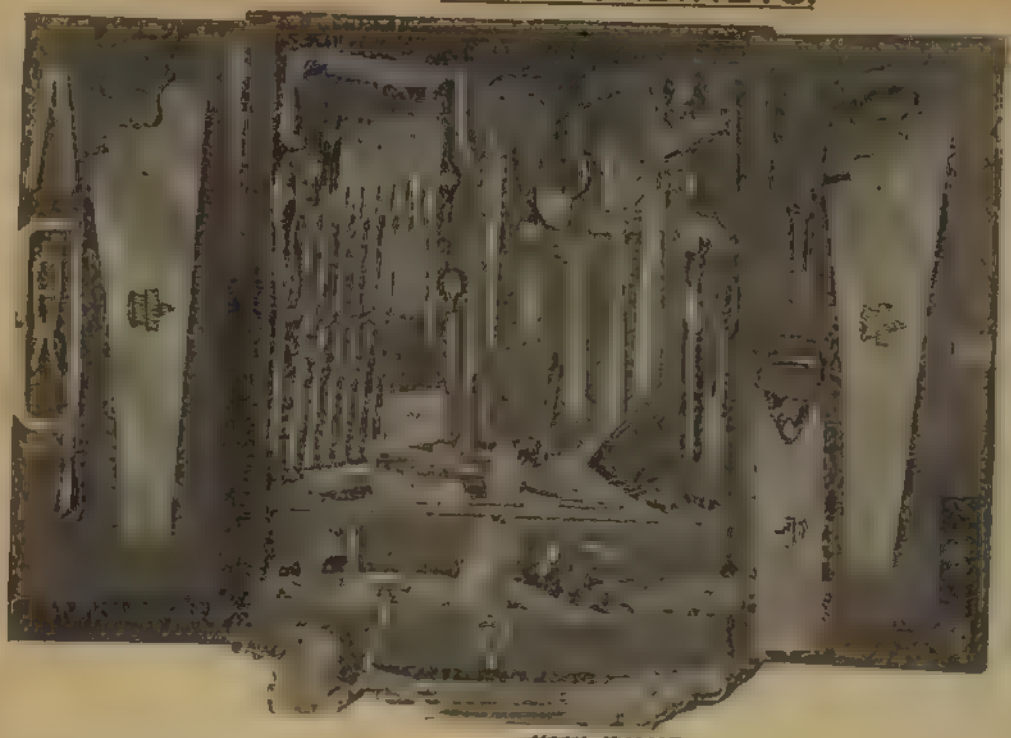
1 *KEEN KUTTER* Iron Jack Plane No. KK5C
1 *KEEN KUTTER* Block Plane No. KK9½.
1 *KEEN KUTTER* Hand Saw No. 88, 22 inch.
1 *KEEN KUTTER* Rip Saw No. 88, 22 inch
1 *KEEN KUTTER* Compass Saw No. 95, 12 inch
1 *KEEN KUTTER* Hack Saw No. 188, 8 inch
12 *KEEN KUTTER* Hack Saw Blades No. KR, 8 inch
1 *KEEN KUTTER* Cabinet Saw No. 91, 12 inch.
1 Coping Saw No. 100.
1 *KEEN KUTTER* Nail Hammer No. K[illegible]
1 *KEEN KUTTER* Machinists' Hammer No. KM[illegible]
1 *KEEN KUTTER* Tack Hammer No. K[illegible]
1 *KEEN KUTTER* Shingling Hatchet No. KNO-1
1 *KEEN KUTTER* Blue Brand Steel Square, 12x18 inch.
1 *KEEN KUTTER* Blue Brand Try Square No. 120, 6 inch.
1 Sliding T Bevel.
1 *KEEN KUTTER* Drawing Knife, 8 inch
1 *KEEN KUTTER* Ratchet Brace No. 104, 10 inch
1 each *KEEN KUTTER* Special Auger Bit No. KS, [illegible] $^{6}/_{16}$, $^{8}/_{16}$, $^{10}/_{16}$, $^{12}/_{16}$ and $^{16}/_{16}$ inch.
1 *KEEN KUTTER* Expansive Bit, large, No. KKL.
1 each *KEEN KUTTER* Gimlet Bit, German Pattern, [illegible] $^{6}/_{32}$, $^{8}/_{32}$ inch.
1 each *KEEN KUTTER* Countersink Bit No. 113 and 114.
1 *KEEN KUTTER* Blue Brand Screw Driver Bit No. 103
1 *KEEN KUTTER* Reamer Bit No. 115.
1 *KEEN KUTTER* Hand Drill No. K3.
1 each *KEEN KUTTER* Special Soc. Fir. Beveled Chisel, No SB, ¼, ⅜, ½, ¾, 1, 1½ inch.
1 *KEEN KUTTER* Socket Firmer Gouge, ½ inch
1 *KEEN KUTTER* Mill File, 8 inch, with Handle
1 each *KEEN KUTTER* Special Slim Taper File, 4½ and 6 inch, with Handle.
1 *KEEN KUTTER* Half Round Cabinet File, 10 inch, with Handle.
1 *KEEN KUTTER* Oil Stone, Mounted, No. KM6
1 *KEEN KUTTER* Beveled Oil Slip No. KBS
1 *KEEN KUTTER* Awl and Tool Set No. 50
1 *KEEN KUTTER* Screw Driver No. 50, 3, 5 and 8 inch.
1 *KEEN KUTTER* Blue Brand Divider No. 691, 8 inch.
1 *KEEN KUTTER* Blue Brand Scratch Awl, No. 111.
1 *KEEN KUTTER* Blue Brand Brad Awl No. 110
1 each *KEEN KUTTER* Nail Set No. 200, [illegible] and [illegible] inch
1 *KEEN KUTTER* Black Jack Cold Chisel ¾ inch
1 *KEEN KUTTER* Side Cutting Plier No. 150, 7 inch
1 *KEEN KUTTER* Combination Plier, Nickel Plated, No. 160.
1 *KEEN KUTTER* Carpenters' Pincers, No. 808.
1 *KEEN KUTTER* Glass Cutter No. 10
1 *KEEN KUTTER* Cabinet Scraper [illegible] inch.
1 *KEEN KUTTER* Carpenters' Apron No. K
1 Pair *KEEN KUTTER* Tinners' Snips No. 9
1 Black Jack Wrench No. BJ, 8 inch.
1 Sure Grip Wrench No. 40
1 Blue Brand Tape Line No. 6050.
1 E. C. Simmons' Carpenters' Pencil No. 107.
E. C. Simmons' Redline Rule No. 620.
1 Bench Vise.
1 Marking Gauge.
1 Boxwood Level.
1 Extra Grade Seasoned 2nd Growth Hickory Mallet.
1 Pair Malleable Carriage Clamps.
1 Brass Plated Oiler
[illegible] Sheets *KEEN KUTTER* Sand Paper, Assorted
1 4-oz. Can Klincher Glue
[illegible] Spool Wire
1 Package Assorted Nails and Brads.
Package Assorted Screws
[illegible] Package Tacks.

One in a Crate

*Weight of Cabinet with Tools about 99 lbs.; Crated 119 lbs

TRADE MARK:
E. C. SIMMONS' KEEN KUTTER.

TOOL CABINETS.



KEEN KUTTER*

Heavy Oak Corner Cabinet, with Two Paneled Doors; Three Inside Drawers, 3 inches Deep; Antique Finish, Finely Varnished and Hand Rubbed; Brass Plated Ball Tip Steel Hinges; Two Brass Hangers on Back; Brass Cylinder Lock, with Two Steel Keys; Complete with Outfit of Highest Grade Tools.

Dimensions of Cabinet:

Outside 32 inches High, 26 inches Wide at Front, 7 inches Wide at Back, 5 inches Deep at Side, 13½ inches Deep at Center; Inside [illegible] inches High, [illegible] inches Wide at Front, 5½ inches Wide at Back, 4 inches Deep at Side, 12 inches Deep at Center.

No. K11C KEEN KUTTER* Corner Cabinet Complete with Outfit of 87 Highest Grade Tools, etc. . . . . Each $70.00

Contents of No. K11C KEEN KUTTER* Tool Cabinet.

1 KEEN KUTTER Iron Jack Plane No. KKJC
1 KEEN KUTTER Block Plane No. KK9½.
1 KEEN KUTTER Hand Saw No. 88, 22 inch.
1 KEEN KUTTER Rip Saw No. 88, 22 inch.
1 KEEN KUTTER Compass Saw No. 95, 12 inch.
1 KEEN KUTTER Hack Saw No. 188, 8 inch.
12 KEEN KUTTER Hack Saw Blades No. KR, 8 inch.
1 KEEN KUTTER Cabinet Saw No. 91, 12 inch.
1 Coping Saw.
1 KEEN KUTTER Nail Hammer No. K512.
1 KEEN KUTTER Machinists' Hammer No. KM30.
1 KEEN KUTTER Tack Hammer No. K500.
1 KEEN KUTTER Shingling Hatchet No. KN0/1.
1 KEEN KUTTER Blue Brand Steel Square, 1"x18 inch.
1 KEEN KUTTER Blue Brand Try Square No. 120, 6 inch.
1 Sliding T Bevel.
1 KEEN KUTTER Drawing Knife, 8 inch.
1 KEEN KUTTER Patcher Brace No. 104, 10 inch.
1 each KEEN KUTTER Special Auger Bits No. [illegible] 5/16, 6/16, 8/16, 10/16, 12/16 and 16/16 inch.
1 KEEN KUTTER Expansive Bit, large, No. KKL.
1 each KEEN KUTTER Gimlet Bit, German Pattern, 4/32, 6/32 and 8/32 inch.
1 KEEN KUTTER Countersink Bit No. 113.
1 KEEN KUTTER Countersink Bit No. 114.
1 KEEN KUTTER Blue Brand Screw Driver Bit, No. 103.
1 KEEN KUTTER Reamer Bit No. 117.
1 KEEN KUTTER Hand Drill No. K3.
1 each KEEN KUTTER Special Soc. Fir. Beveled Chisel, ¼, ⅜, ½, ¾, 1 and 1½ inch.
1 KEEN KUTTER Socket Firmer Gouge, ½ inch.
1 KEEN KUTTER Mill File, 8 inch, with Handle.
1 each KEEN KUTTER Special Slim Taper Files, 4½ and 6 inch, with Handles.
1 KEEN KUTTER Half Round Cabinet File, 10 inch, with Handle.
1 KEEN KUTTER Oil Stone, Mounted, No. KM6.
1 KEEN KUTTER Beveled Oil Stone No. KHS.
1 KEEN KUTTER Awl and Tool Set No. 50.
1 each KEEN KUTTER Screw Driver No. 50, 3, 5 and 8 inch.
1 KEEN KUTTER Blue Brand Divider No. 601, 8 inch.
1 KEEN KUTTER Blue Brand Scratch Awl No. 111.
1 KEEN KUTTER Blue Brand Bead Awl No. 110.
1 each KEEN KUTTER Nail Set No. 200, [illegible] and 4/32 inch.
1 KEEN KUTTER Black Jack Cold Chisel, ¾ inch.
1 KEEN KUTTER Side Cutting Plier No. 950, 7 inch.
1 KEEN KUTTER Combination Plier, Nickel Plated, No. 160.
1 KEEN KUTTER Carpenters' Pincer No. 308.
1 KEEN KUTTER Glass Cutter No. 10.
1 KEEN KUTTER Cabinet Scraper, 3x5 inch.
1 KEEN KUTTER Carpenters' Apron No. K.
1 Pair KEEN KUTTER Tinners' Snips No. 9.
1 Black Jack Wrench No. BJ, 8 inch.
1 Sure Grip Wrench No. 40.
1 Blue Brand Tape Line No. 6050.
1 E. C. Simmons' Carpenters' Pencil No. 107.
1 E. C. Simmons' Redline Rule No. 620.
1 Bench Vise.
1 Marking Gauge.
1 Boxwood Level.
1 Extra Grade Seasoned 2nd Growth Hickory Mallet.
1 Pair Malleable Carriage Clamps.
1 Brass Plated Oiler
6 Sheets KEEN KUTTER Sand Paper, Assorted.
1 4 oz. Can Klincher Glue.
1 Spool Wire
1 Package Assorted Nails and Brads.
1 Package Assorted Screws.
1 Package Tacks.

Weight of Cabinet with Tools about 97 lbs.; Crated 120 lbs.
One in a Crate.

TRADE MARK:
E. C. SIMMONS' *KEEN KUTTER*
REGISTERED

TOOL CABINETS.

Heavy Oak Wall Cabinet, with Two Paneled Doors; Inside Drawer, 3 inches Deep; Antique Finish, Finely Varnished and Hand Rubbed; Brass Plated Ball Tip Steel Hinges; Two Brass Hangers on Back; Brass Cylinder Lock, with Two Steel Keys; Complete with Outfit of Highest Grade Tools.

Dimensions of Cabinet:

Outside 31 inches High, 22½ inches Wide, 8 inches Deep; Inside 29½ inches High, 21 inches Wide, 6½ inches Deep.

KEEN KUTTER®

Each

No. K9—*KEEN KUTTER*® Wall Cabinet, Complete with Outfit of 5[illegible] Highest Grade Tools, etc. .....$[illegible]

Contents of No. K9 *KEEN KUTTER*® Tool Cabinet:

1 *KEEN KUTTER* Jack Plane No. KK26.
1 *KEEN KUTTER* Block Plane No. KK9½.
1 *KEEN KUTTER* Hand Saw No. 88, 22 inch.
1 *KEEN KUTTER* Compass Saw No. 93, 12 inch.
1 *KEEN KUTTER* Hack Saw No. 188.
1 Coping Saw
1 *KEEN KUTTER* Nail Hammer No. K12.
1 *KEEN KUTTER* Riveting Hammer No. KR0.
1 *KEEN KUTTER* Shingling Hatchet No. KNO/1.
1 *KEEN KUTTER* Blue Brand Steel Square No. K10
1 *KEEN KUTTER* Blue Brand Try Square No. 120, 6 inch.
1 Sliding T Bevel
1 *KEEN KUTTER* Drawing Knife, 8 inch.
1 *KEEN KUTTER* Ratchet Brace, 8 inch.
1 *KEEN KUTTER* Special Auger Bit No. KS, ⅜ inch.
1 *KEEN KUTTER* Special Auger Bit No. KS, ¼ inch.
1 *KEEN KUTTER* Special Auger Bit No. KS, ⅝ inch.
1 *KEEN KUTTER* Special Auger Bit No. KS, 1 inch.
1 *KEEN KUTTER* Gimlet Bit, German Pattern, 4-32 inch.
1 *KEEN KUTTER* Gimlet Bit, German Pattern, 8-32 inch.
1 *KEEN KUTTER* Countersink Bit No. 113.
1 *KEEN KUTTER* Reamer Bit No. 115.
1 *KEEN KUTTER* Blue Brand Screw Driver Bit No. 103.
1 *KEEN KUTTER* Special Soc. Fir. Beveled Chisel, ¼ inch.
1 *KEEN KUTTER* Special Soc. Fir. Beveled Chisel, ½ inch.
1 *KEEN KUTTER* Special Soc. Fir. Beveled Chisel, 1 inch.
1 *KEEN KUTTER* Soc. Fir. Gouge, ⅛ inch.
1 *KEEN KUTTER* Mill File, 8 inch, with Handle.
1 *KEEN KUTTER* Special Slim Taper File, 5½ inch, with Handle.
1 *KEEN KUTTER* Half Round Cabinet File, 10 inch, with Handle.
1 *KEEN KUTTER* Oil Stone, Mounted, No. KM6.
1 *KEEN KUTTER* Awl and Tool Set No. 50.
1 *KEEN KUTTER* Blue Brand Screw Driver No. [illegible] inch.
1 *KEEN KUTTER* Blue Brand Screw Driver No. 61[illegible], [illegible] inch.
1 *KEEN KUTTER* Blue Brand Divider No. 691, 8 inch.
1 *KEEN KUTTER* Blue Brand Scratch Awl No. 111.
1 *KEEN KUTTER* Blue Brand Brad Awl No. 110.
1 *KEEN KUTTER* Nail Set No. 200.
1 *KEEN KUTTER* Comb'n Plier, Nickel Plated, No. 160.
1 *KEEN KUTTER* Glass Cutter No. 10
1 *KEEN KUTTER* C[illegible] Scraper, [illegible] inch.
1 Blue Brand Tape Line No. 6050.
1 E. C. Simmons' Carpenters' Pencil No. 107.
1 E. C. Simmons' Redline Rule No. 630.
1 Marking Gauge.
1 Boxwood Level.
1 Never Slip Wrench, 8 inch.
1 Extra Grade Seasoned 2nd Growth Hickory Mallet.
1 Pair Malleable Carriage Clamps, 2½ inch.
1 Brass Plated Oiler No. 0.
6 Sheets *KEEN KUTTER* Sand Paper, Assorted.
1 2-oz. Can Klincher Glue.
1 Spool Wire No. 28T.
1 Package Assorted Nails and Brads.
1 Package Assorted Screws.
1 Package Tacks.

Weight of Cabinet with Tools about 70 lbs.; Crated 88½ lbs.
One in a Crate.

TRADE MARK
E. C. SIMMONS' *KEEN KUTTER*,
REGISTERED

TOOL CABINETS.

Heavy Oak Wall Cabinet, with Paneled Box Door; Inside Drawer, 3 inches Deep; Antique Finish, Finely Varnished and Hand Rubbed, Brass Plated Hinges and Hasp; Two Brass Hangers on Back; Polished Brass Padlock, with Two Steel Keys; Complete with Outfit of Highest Grade Tools.

Dimensions of Cabinet:

Outside 27 inches High, 18½ inches Wide, 9 inches Deep; Inside 25½ inches High, 17 inches Wide, 7½ inches Deep.

KEEN KUTTER

No. K7—*KEEN KUTTER* Wall Cabinet, Complete with 44 Highest Grade Tools, etc..... Each $40.00

Contents of No. K7 *KEEN KUTTER* Tool Cabinet:

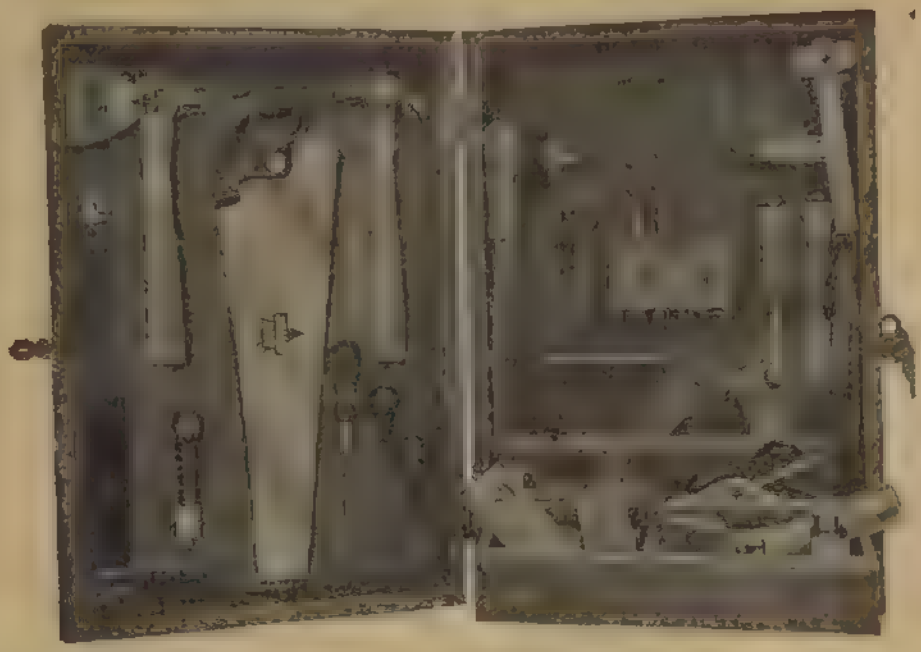
1 *KEEN KUTTER* Jack Plane No. KJ.
1 *KEEN KUTTER* Block Plane No. KK9½
1 *KEEN KUTTER* Hand Saw No. 88, 20 inch
1 *KEEN KUTTER* Compass Saw No. 93, 12 inch.
1 *KEEN KUTTER* Nail Hammer No. K12
1 *KEEN KUTTER* Shingling Hatchet No. KNS/1
1 *KEEN KUTTER* Ratchet Brace, 8 inch
1 *KEEN KUTTER* Special Auger Bit No. KS [illegible] inch
1 *KEEN KUTTER* Special Auger Bit No. KS [illegible] inch
1 *KEEN KUTTER* Special Auger Bit No. KS, [illegible] inch
1 *KEEN KUTTER* Gimlet Bit, German Pattern, 4-32 inch.
1 *KEEN KUTTER* Gimlet Bit, German Pattern, 8-32 inch.
1 *KEEN KUTTER* Drawing Knife, 8 inch.
1 *KEEN KUTTER* Special Soc. Fir. Chisel No. SA, ¼ inch.
1 *KEEN KUTTER* Special Soc. Fir. Chisel No. SA, ½ inch.
1 *KEEN KUTTER* Special Soc. Fir. Chisel No. SA, 1 inch
1 *KEEN KUTTER* Soc. Fir Gouge, ½ inch.
1 *KEEN KUTTER* Oil Stone, Mounted, No. KM6.
1 *KEEN KUTTER* Countersink Bit No. 113.
1 *KEEN KUTTER* Blue Brand Screw Driver Bit No. 103.
1 *KEEN KUTTER* Mill File, 8 inch, with Handle.
1 *KEEN KUTTER* Special Slim Taper File, 5½ inch, with Handle
1 *KEEN KUTTER* Blue Brand Steel Square No. K10
1 *KEEN KUTTER* Blue Brand Divider No. 691, 6 inch
1 *KEEN KUTTER* Combination Plier, Nickel Plated, No. 160
1 *KEEN KUTTER* Riveting Hammer No. KR0.
1 *KEEN KUTTER* Awl & Tool Set No. 50.
1 *KEEN KUTTER* Glass Cutter No. 10.
1 *KEEN KUTTER* Blue Brand Screw Driver No. 615, 3 inch
1 *KEEN KUTTER* Blue Brand Screw Driver No. 615, 6 inch
1 *KEEN KUTTER* Blue Brand Scratch Awl No. 111
1 *KEEN KUTTER* Blue Brand Brad Awl, No. 110
1 *KEEN KUTTER* Nail Set No. 200
1 *KEEN KUTTER* Blue Brand Try Square No. 120, 6 inch.
1 Sliding T Bevel.
1 Marking Gauge.
1 Coping Saw No. 100.
1 Sure Grip Wrench No. 40.
1 E. C. Simmons' Carpenters' Pencil No. 107.
1 E. C. Simmons' Redline Rule No. 630.
1 Rosewood Level.
1 *KEEN KUTTER* Cabinet Scraper, 3x5 inch
1 Pair Malleable Carriage Clamps.
1 Brass Plated Oiler
6 Sheets *KEEN KUTTER* Sand Paper, Assorted.
1 [illegible] Can Klincher Glue.
1 Spool Wire
1 Package Assorted Screws.
1 Package Assorted Nails and Brads.
1 Package Tacks.

Weight of Cabinet with Tools about 57 lbs.; Crated 72 lbs.

One in a Crate.

TRADE MARK
E. C. SIMMONS' KEEN KUTTER.
REGISTERED.

TOOL CABINETS.



KEEN KUTTER*

Heavy Oak Wall Cabinet, with Patent Box Door, Inside Drawer 3 inches Deep, Antique Finish, Finely Varnished and Hand Rubbed, Brass Latch, Steel Hinges and Hasp, Two Brass Hangers on Back, Polished Brass Padlock with Two Steel Keys, Complete with Outfit of Highest Grade Tools.

Dimensions of Cabinet:

Outside 26 inches High, 17½ inches Wide, 4 inches Deep. Inside 24½ inches High, 16 inches Wide, 7½ inches Deep.

	Each
No. K5—KEEN KUTTER* Wall Cabinet, Complete with 30 Highest Grade Tools, etc. . .	$24.00

Contents of No. K5 KEEN KUTTER* Tool Cabinet:

1 KEEN KUTTER Jack Plane No. KJ
1 KEEN KUTTER Block Plane No. KK120
1 KEEN KUTTER Hand Saw No. 88, 20 inch.
1 KEEN KUTTER Pad Saw No. KP.
1 KEEN KUTTER Blue Brand Nail Hammer No. B12.
1 KEEN KUTTER Shingling Hatchet No. KS/1.
1 KEEN KUTTER Brace, 8 inch.
1 KEEN KUTTER Special Auger Bit No. KS, ⅜ inch.
1 KEEN KUTTER Special Auger Bit No. KS, ½ inch.
1 KEEN KUTTER Special Auger Bit No. KS, ¾ inch.
1 KEEN KUTTER Butt Chisel No. E, ½ inch.
1 KEEN KUTTER Butt Chisel No. E, 1 inch.
1 KEEN KUTTER Gimlet Bit, German Pattern, 4-32 inch.
1 KEEN KUTTER Gimlet Bit, German Pattern, 8-32 inch.
1 KEEN KUTTER Oil Stone No. K6.
1 KEEN KUTTER Mill File, 8 inch, with Handle.
1 KEEN KUTTER Special Slim Taper File, 5½ inch, with Handle.
1 KEEN KUTTER Nail Set No. 200.
1 Pair KEEN KUTTER Comb'n. Pliers No. 260.
1 KEEN KUTTER Blue Brand Try Square No. 120, 7½ inch.
1 KEEN KUTTER Blue Brand Screw Driver No. 615, 6 inch.
1 KEEN KUTTER Blue Brand Divider No. 691, 6 inch.
1 KEEN KUTTER Blue Brand Scratch Awl No. 111.
1 KEEN KUTTER Blue Brand Brad Awl No. 110.
1 KEEN KUTTER Awl and Tool Set No. 50.
1 KEEN KUTTER Cabinet Scraper, 3x5 inch
1 E. C. Simmons' Carpenters' Pencil No. 107.
1 E. C. Simmons' Redline Rule No. 630.
1 Rosewood Level
1 Marking Gauge
1 Brass Plated Oiler
1 2-oz. Can Klincher Glue
4 Sheets KEEN KUTTER Sand Paper, Assorted.
1 Spool Wire No.
1 Package Assorted Screws.
1 Package Assorted Nails and Brads.
1 Package Tacks.

Weight of Cabinet with Tools about 50 lbs.; Crated 63 lbs.

One in a Crate.

This Mark E. C. Simmons KEEN KUTTER, Registered

TOOL CABINETS.

KEEN KUTTER*

Heavy Oak Wall Cabinet with Panelled Door, Antique Finish Finely Varnished and Hand Rubbed, Brass Plated Steel Hinges and Lock, Two Brass Hangers on Back, Polished Brass Padlock, with Two Steel Keys. **Complete with Outfit of Highest Grade Tools.**

Dimensions of Cabinet:

Outside 24 inches High, 16 inches Wide, 8 inches Deep. Inside 22½ inches High, 14½ inches Wide, 4½ inches Deep.

	Each
No. K3 KEEN KUTTER* Wall Cabinet, Complete with Outfit of 21 Highest Grade Tools, etc.	.... $17.50

Contents of No. K3 KEEN KUTTER* Tool Cabinet:

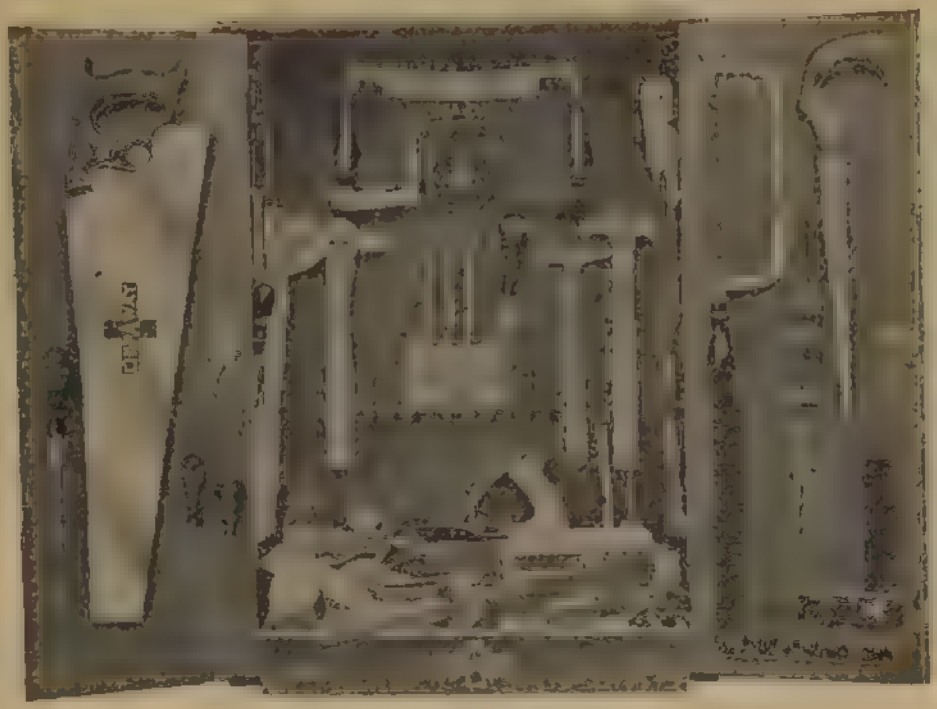
- 1 KEEN KUTTER Smooth Plane No. KS.
- 1 KEEN KUTTER Panel Saw No. 38, 18 inch.
- 1 KEEN KUTTER Blue Brand Nail Hammer No. B.2
- 1 KEEN KUTTER Shingling Hatchet No. KS/1.
- 1 KEEN KUTTER Brace, 8 inch.
- 1 KEEN KUTTER Auger Bit No. K, ⅜ inch.
- 1 KEEN KUTTER Auger Bit No. K, ½ inch.
- 1 KEEN KUTTER Gimlet Bit, German Pattern, 4-32 inch.
- 1 KEEN KUTTER Butt Chisel No. E, 1 inch.
- 1 KEEN KUTTER Oil Stone No. K6.
- 1 KEEN KUTTER Blue Brand Try Square No. 120, 6 inch.
- 1 KEEN KUTTER Blue Brand Screw Driver No. 615, 5 inch.
- 1 KEEN KUTTER Mill File, 8 inch, with Handle.
- 1 KEEN KUTTER Special Slim Taper File, 5½ inch, with Handle.
- 1 KEEN KUTTER Awl and Tool Set No. 50.
- 1 KEEN KUTTER Nail Set No. 200.
- 1 KEEN KUTTER Flat Nose Plier No. 0808, 5 inch.
- 1 KEEN KUTTER Cabinet Scraper, 3x5 inch.
- 1 E. C. Simmons' Carpenters' Pencil No. 107.
- 1 E. C. Simmons' Redline Rule No. 680.
- 1 Marking Gauge.
- 1 Brass Plated Oiler
- 1 2-oz. Can Klincher Glue.
- 1 Spool Wire
- 2 Sheets KEEN KUTTER Sand Paper, Assorted.
- 1 Package Assorted Screws.
- 1 Package Assorted Nails and Brads.
- 1 Package Tacks.

Weight of Cabinet with Tools about 32 lbs.; Crated 44 lbs.

One in a Crate.

TRADE MARK: CHIPAWAY. REGISTERED.

TOOL CABINETS.



Heavy Oak Wall Cabinet [illegible] Two Panel Doors [illegible] Door [illegible] inches [illegible] Color Shellac and Varnish Finish. Brass Lacquered Fittings. Two Steel Hinges. Two Brass Hinges on Back. Brass Cylinder Lock, with Two Steel Keys. **Complete with Outfit of High-grade Tools**

Dimensions of Cabinet:

Outside 31 inches High [illegible] inches Wide, [illegible] inches Deep. **Inside** [illegible] inches High, 2 inches Wide, 6½ inches Deep

CHIPAWAY*

Each

No. C10—CHIPAWAY* Wall Cabinet, Complete with 50 High Grade Tools, etc. . . . . $[illegible]

Contents of No. C10 **CHIPAWAY*** Tool Cabinet:

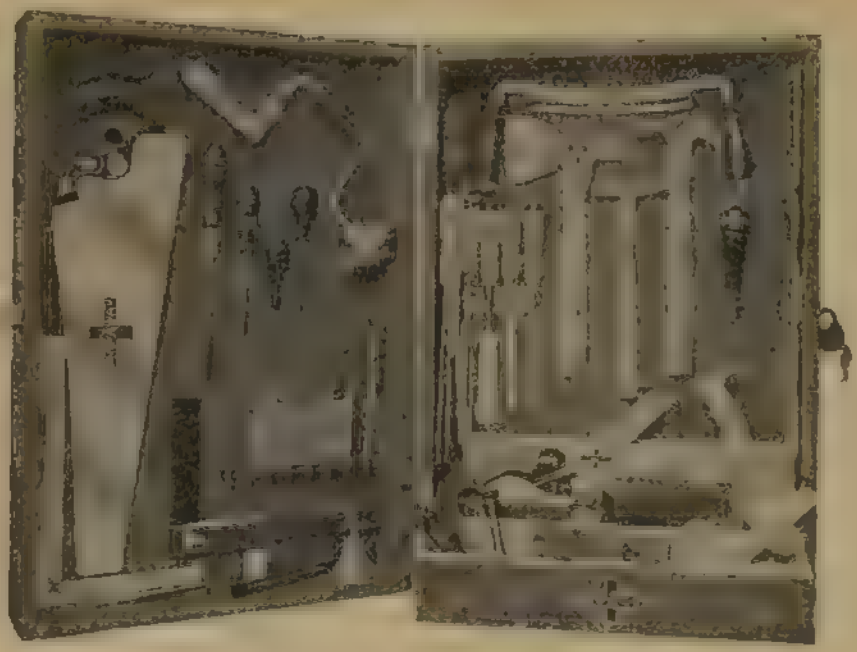
1 Jack Plane
1 Block Plane
1 **CHIPAWAY** Panel Saw No. 90, 22 inch.
1 **CHIPAWAY** Hack Saw No. C[illegible]
1 **CHIPAWAY** Compass Saw No. 86, 12 inch.
1 Coping Saw
1 **CHIPAWAY** Nail Hammer No. C1[illegible]
1 **CHIPAWAY** Riveting Hammer No. CR0.
1 **CHIPAWAY** Shingling Hatchet No. CPS/1
1 **CHIPAWAY** Drawing Knife, 8 inch
1 **CHIPAWAY** Steel Square No. C10.
1 **CHIPAWAY** Special Soc. Fir. Bevel Chisel, ¼ inch
1 **CHIPAWAY** Special Soc. Fir. Bevel Chisel, ½ inch
1 **CHIPAWAY** Special Soc. Fir. Bevel Chisel, 1 inch
1 **CHIPAWAY** Socket Firmer Gouge, ½ inch
1 **CHIPAWAY** Ratchet Brace No. C123, 8 inch
1 **CHIPAWAY** Auger Bit, ⅜ inch.
1 **CHIPAWAY** Auger Bit, ½ inch.
1 **CHIPAWAY** Auger Bit, ¾ inch.
1 **CHIPAWAY** Auger Bit, 1 inch.
1 **CHIPAWAY** Oil Stone, Mounted, No. CM7
1 **CHIPAWAY** [illegible] Set No. [illegible]
1 **CHIPAWAY** [illegible], with Handle
1 **CHIPAWAY** Slim Taper File, 5½ inch, with Handle
1 **CHIPAWAY** Half Round Cabinet File, 10 inch, with Handle
1 **CHIPAWAY** Nail Set No. 100.
1 E. C. Simmons' Carpenters' Pencil No. 107.
1 E. C. Simmons' Redline Rule No. [illegible]
1 Blue Brand Tape Line No. 60[illegible]
1 [illegible] Screw Driver No. [illegible], 3 inch
1 [illegible] Screw Driver No. 72, [illegible] inch
1 Nest Set Wrench [illegible] inch
1 Combination Plier.
1 Gimlet Bit, German Pattern, [illegible] inch
1 Gimlet Bit, German Pattern, [illegible] inch
1 Countersink Bit
Reamer Bit.
[illegible]
1 [illegible]
1 Special Grade Scratch Awl
1 Special Grade Brad Awl
Boxwood Level
1 [illegible] Square
1 [illegible] Bevel
1 [illegible] Gauge
1 [illegible] Square
1 [illegible] No. [illegible]
1 Special Grade Hickory Mallet
1 Pair Malleable Carriage Clamps
1 Brass Plated Oiler,
1 2 oz. Can Klincher Glue.
[illegible] Sheets Crown Sand Paper, Assorted.
1 Spool Wire
1 Package Assorted Screws.
1 Package Assorted Nails and Brads.
1 Package Tacks.

Weight of Cabinet with Tools about 68 lbs.; Crated 84 lbs.

One in a Crate

TRADE MARK
CHIPAWAY
REGISTERED.

TOOL CABINETS.



Heavy Oak Wall Cabinet, with Paneled Box Door; Inside Drawer, 3 inches Deep, Natural Color, Shellac and Varnish Finish. Brass Plated Steel Hinges and Hasp; Two Brass Hangers on Back; Ivory Black Finished Steel Padlock, with Two Steel Keys; Complete with Outfit of High-grade Tools.

Dimensions of Cabinet:

Outside 27 inches High, 18½ inches wide, 9 inches Deep; Inside 25½ inches High, 17 inches Wide, 7½ inches Deep.

CHIPAWAY*

No. C8—**CHIPAWAY*** Wall Cabinet, Complete with Outfit of 44 High Grade Tools, etc. . . . . Each $27.00

Contents of No. C8 CHIPAWAY* Tool Cabinet:

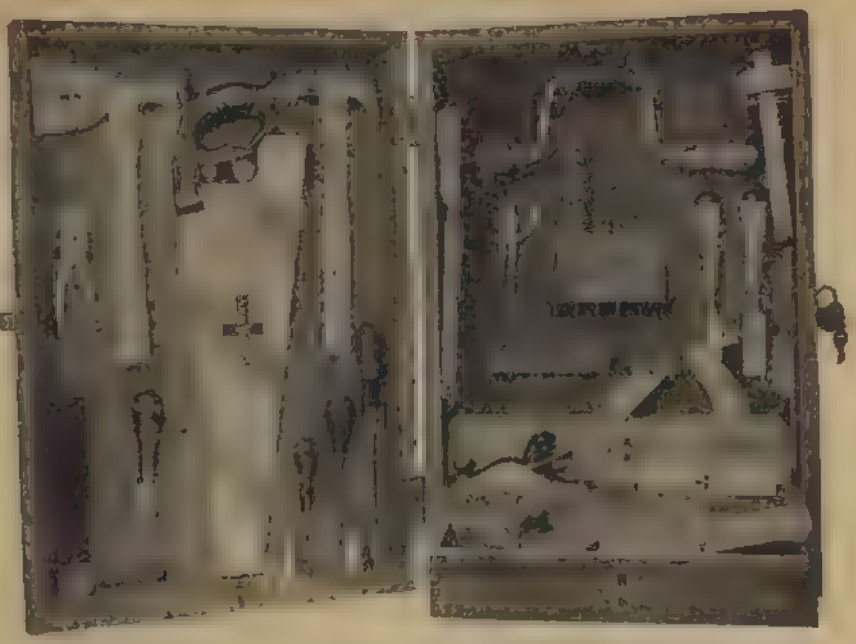
1 **CHIPAWAY** Jack Plane No. CJ
1 Block Plane
1 **CHIPAWAY** Panel Saw No. 90, 20 inch
1 **CHIPAWAY** Compass Saw No. 88, 12 inch.
1 **CHIPAWAY** Ratchet Brace No. C123, 8 inch.
1 **CHIPAWAY** Nail Hammer No. C12.
1 **CHIPAWAY** Riveting Hammer No. CR0.
1 **CHIPAWAY** Shingling Hatchet No. CPS/1
1 **CHIPAWAY** Drawing Knife, 8 inch
1 **CHIPAWAY** Steel Square No. C10
1 **CHIPAWAY** Special Soc. Fir. Plain Chisel, ¼ inch.
1 **CHIPAWAY** Special Soc. Fir. Plain Chisel, ½ inch.
1 **CHIPAWAY** Special Soc. Fir. Plain Chisel, 1 inch.
1 **CHIPAWAY** Soc. Fir. Gouge, ½ inch.
1 **CHIPAWAY** Auger Bit, ⅜ inch.
1 **CHIPAWAY** Auger Bit, ½ inch
1 **CHIPAWAY** Auger Bit, ¾ inch
1 **CHIPAWAY** Awl and Tool Set No. 40
1 **CHIPAWAY** Nail Set No. 100.
1 **CHIPAWAY** Oil Stone, Mounted, No. CM.
1 **CHIPAWAY** Mill File, 8 inch, with Handle.
1 **CHIPAWAY** Slim Taper File, 5½ inch, with Handle.
1 E. C. Simmons' Carpenters' Pencil No. 107.
1 E. C. Simmons' Redline Rule No. 630.
1 Drive Well Screw Driver No. 725, 3 inch.
1 Drive Well Screw Driver No. 725, 6 inch.
1 Sure Grip Wrench No. 20.
1 Gimlet Bit, German Pattern, 4-32 inch.
1 Gimlet Bit, German Pattern, 8-32 inch.
1 Countersink Bit
1 Screw Driver Bit.
1 Combination Plier.
1 Divider.
1 Try Square
1 Sliding T Bevel
1 Coping Saw.
1 Rosewood Level
1 Marking Gauge
1 Cabinet Scraper.
1 Glass Cutter
1 Special Grade Scratch Awl
1 Special Grade Brad Awl
1 Brass Plated Oiler
1 Pair Malleable Carriage Clamps.
1 2-oz. Can Klincher Glue.
1 Spool Wire
6 Sheets Crown Sand Paper, Assorted.
1 Package Assorted Screws.
1 Package Assorted Nails and Brads.
1 Package Tacks.

Weight of Cabinet with Tools about 53 lbs.; Crated 68 lbs.

One in a Crate.

TRADE MARK, CHIPAWAY REGISTERED.

TOOL CABINETS.



CHIPAWAY*

Heavy Oak Wall Cabinet with Paneled Box Door. Inside Drawer 2 inches Deep, Natural Color, Shellac and Varnish Finish, Brass Plated Steel Hinges and Hasp. Two Brass Hangers on Back, Ivory Black Finished Steel Padlock, with Two Steel Keys; Complete with Outfit of High-grade Tools.

Dimensions of Cabinet:

Outside 26 inches High, 17½ inches Wide, 9 inches Deep; Inside 24½ inches High, 16 inches Wide, 7½ inches Deep

	Each
No. C6—CHIPAWAY* Wall Cabinet, Complete with 30 High-grade Tools, etc	$20.00

Contents of No. C6 CHIPAWAY* Tool Cabinet:

- 1 **CHIPAWAY** Jack Plane No. CJ
- 1 Block Plane
- 1 **CHIPAWAY** Panel Saw No. 90, 20 inch.
- 1 Pad Saw.
- 1 **CHIPAWAY** Shingling Hatchet No. CS-1.
- 1 **CHIPAWAY** Butt Chisel, ½ inch.
- 1 **CHIPAWAY** Butt Chisel, 1 inch
- 1 **CHIPAWAY** Brace No. C23, 8 inch.
- 1 **CHIPAWAY** Auger Bit, ⅜ inch.
- 1 **CHIPAWAY** Auger Bit, ½ inch.
- 1 **CHIPAWAY** Auger Bit, ¾ inch.
- **CHIPAWAY** Oil Stone No. C6.
- 1 **CHIPAWAY** Nail Hammer No. C12.
- 1 **CHIPAWAY** Awl and Tool Set No. 40.
- 1 **CHIPAWAY** Mill File, 8 inch, with Handle.
- 1 **CHIPAWAY** Slim Taper File, 5½ inch, with Handle.
- **CHIPAWAY** Nail Set No. 100.
- 1 E. C. Simmons' Carpenters' Pencil No. 107.
- 1 E. C. Simmons' Redline Rule No. 630.
- 1 Drive Well Screw Driver No. 72[illegible], 6 inch.
- 1 Rosewood Level.
- 1 Try Square.
- 1 Marking Gauge.
- 1 Divider.
- 1 Combination Plier.
- 1 Gimlet Bit, German Pattern, 4-32 inch.
- 1 Gimlet Bit, German Pattern, 8-32 inch.
- 1 Cabinet Scraper.
- 1 Special Grade Scratch Awl.
- 1 Special Grade Brad Awl.
- 1 Brass Plated Oiler
- 1 2-oz. Can Klincher Glue.
- 1 Spool Wire
- 4 Sheets Crown Sand Paper, Assorted.
- 1 Package Assorted Screws.
- 1 Package Assorted Nails and Brads.
- 1 Package Tacks.

Weight of Cabinet with Tools about 50 lbs.; Crated 63 lbs.

One in a Crate.

TRADE MARK:
CHIPAWAY
REGISTERED.

TOOL CABINETS.

CHIPAWAY*

Heavy Oak Wall Cabinet, with Paneled Door; Natural Color, Shellac and Varnish Finish; Brass Plated Steel Hinges and Hasp; Two Brass Hangers on Back; Ivory Black Finished Steel Padlock, with Two Steel Keys; Complete with Outfit of High Grade Tools.

Dimensions of Cabinet:

Outside 24 inches High, 16 inches Wide, 6 inches Deep; Inside 22½ inches High, 14½ inches Wide, 4½ inches Deep.

No. C4—CHIPAWAY* Wall Cabinet, Complete with Outfit of 21 High Grade Tools, etc . ...Each $13.50

Contents of No. C4 CHIPAWAY* Tool Cabinet:

1 CHIPAWAY Smooth Plane No CS
1 CHIPAWAY Panel Saw No. 90, 18 inch.
1 CHIPAWAY Shingling Hatchet No. CS/1.
1 CHIPAWAY Brace No. C23, 8 inch.
1 CHIPAWAY Nail Hammer No. C12.
1 CHIPAWAY Butt Chisel, 1 inch.
1 CHIPAWAY Auger Bit, ⅜ inch.
1 CHIPAWAY Auger Bit, ½ inch.
1 CHIPAWAY Mill File, 8 inch, with Handle
1 CHIPAWAY Slim Taper File, 5½ inch, with Handle.
1 CHIPAWAY Awl and Tool Set No. 40.
1 CHIPAWAY Oil Stone No. C6.
1 CHIPAWAY Nail Set No. 100.
1 Drive Well Screw Driver No. 725, 5 inch.
1 E. C. Simmons' Carpenters' Pencil No. 107.
1 E. C. Simmons' Redline Rule No. 680
1 Try Square.
1 Marking Gauge.
1 Pair Flat Nose Pliers.
1 Gimlet Bit, German Pattern, 4-32 inch.
1 Cabinet Scraper.
1 Brass Plated Oiler.
1 2-oz. Can Klincher Glue.
Spool Wire
2 Sheets Crown Sand Paper, Assorted.
1 Package Assorted Nails and Brads.
1 Package Assorted Screws.
1 Package Tacks

Weight of Cabinet with Tools about 30 lbs.; Crated 42 lbs

One in a Crate.

TOOLS.

OSBORNE'S SADDLERS'.

PAD AWLS.

Per Dozen

No. 01—5 inch Polished Steel Awl, Octagon Ebony Handle 3 inches Long, with Brass Ferrule; Length over all 8 inches; Weight per dozen about 2 lbs. $10.50

PAD AWLS.

Per Dozen

No. 3—4 inch Polished Steel Awl, through Handle, Riveted; Polished Rosewood Handle 3½ inches Long, with Shoulder and Brass Ferrule; Length over all 7¾ inches; Weight per dozen about 2 lbs. $6.80

DRAWING AWLS.

Per Dozen

No. 5—5¼ inch Polished Steel Awl, through Handle, Riveted; Polished Rosewood Handle 3½ inches Long, with Shoulder and Brass Ferrule; Length over all 9 inches; Weight per dozen about 2 lbs. $7.50

THONG AWLS.

Per Dozen

No. 6—2¾ inch Polished Steel Awl; Polished Rosewood Handle 3¼ inches Long, with Shoulder and Brass Ferrule; Length over all [illegible] inches; Weight per dozen about 2 lbs. $10.25

COLLAR AWLS.

Per Dozen

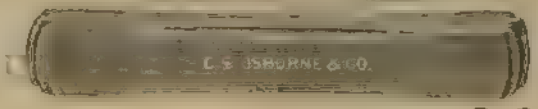
No. 8—6 inch Polished Steel Awl through Handle Riveted; Polished Rosewood Handle 3½ inches Long, with Shoulder and Brass Ferrule; Length over all 9¾ inches; Weight per dozen about 2 lbs. $7.80

BEVEL TICKLERS.

Per Dozen

No. 14—Polished Steel Tickler, Octagon Shank; Polished Rosewood Handle 3¾ inches Long, with Brass Ferrule; Length over all 6 inches; Sizes 1, 2, 3 and 4; Weight per dozen about 2 lbs. $6.00

WOOD CREASERS.



Per Dozen

No. 20—Single Edge; Varnished Lignumvitae Fine Grain; To Crease Sizes 1, 2, 3 and 4; 5¼ inches Long; ¾ inch Wide; ½ inch Thick; Weight per dozen about 2 lbs. $5.80

CREASERS.

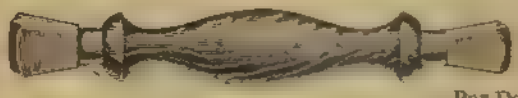
Per Dozen

No. 22—Single Edge, Polished Steel Creaser Octagon Shank; Polished Rosewood Handle 4 inches Long, with Steel Ferrule; Length over all 5½ inches; Sizes 1, 2, 3 and 4; Weight per dozen about 1½ lbs. $12.00

Per Dozen

No. 22½—Double Edge, Polished Steel Creaser, Octagon Shank; Polished Rosewood Handle 4 inches Long, with Steel Ferrule; Length over all 5½ inches; Sizes 1, 2, 3 and 4; Weight per dozen about 1½ lbs. $12.00

CREASERS.



Per Dozen

No. 23—Single Edge; Polished Steel Creaser, Polished Rosewood Handle 5 inches Long with Shoulders and Steel Ferrule; Length over all 7½ inches; Sizes 1, 2, 3 and 4; Weight per dozen about 2 lbs. $15.50

Per Dozen

No. 24½—Laser, Polished Steel Creaser, Octagon Shank, Polished Rosewood Handle 4 inches Long, with Steel Ferrule; Length over all 5½ inches; Sizes 1, 2, 3 and 4; Weight per dozen about 1½ lbs. $12.00

One-half Dozen in a Cardboard Box.

TOOLS.

OSBORNE'S SADDLERS'.

CHANNELERS.

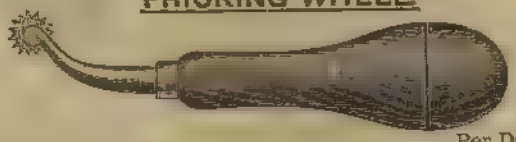
Per Dozen

No. 31—To Cut Straight Channel; Cast Steel Frame, with Thumb Set Screw; Fitted with Highly Tempered Steel Blade, Adjustable to Cut Any Depth Channel Wanted; Polished Rosewood Handle 3¾ inches Long, with Steel Ferrule; Length over all 6½ inches; Weight per dozen about 4 lbs..... $21.60

Per Dozen

No. 208—Edge; Improved; Channel Cut on Slant; Polished Cast Steel Frame, with Set Screw and Highly Tempered Steel Blade, Adjustable to Cut Any Depth Channel Wanted; Polished Rosewood Handle 4½ inches Long, with Shoulder; Length over all 6½ inches; Weight per dozen about 4 lbs.....$21.60

PRICKING WHEEL.



Per Dozen

No. 35—Stationary; Polished Round Steel Carriage; Polished Rosewood Handle 4 inches Long, with Polished Steel Ferrule; Length over all 5½ inches; Fitted with Pricking Wheel; Sizes 5 to 12; ⅛ inch in Diameter; Weight per dozen about 2 lbs.....$10.00

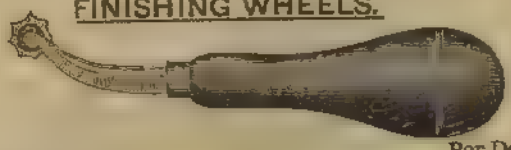
FINISHING WHEEL, BOX CARRIAGE.

Per Dozen

No. 40½—Box Carriage for Finishing Wheels; Polished Steel Carriage; Octagon Shank; Polished Hollow Rosewood Screw Top Handle 4 inches Long, to Hold 15 Extra Wheels; Length over all 5½ inches; Weight per dozen about 2 lbs.....$20.00

One-half Dozen in a Cardboard Box.

FINISHING WHEELS.



Per Dozen

No. 40C—Stationary; Finishing (Over Stitch) Wheel; Polished Steel Carriage; Octagon Shank; Polished Rosewood Handle 4 inches Long, with Steel Ferrule; Length over all 5½ inches; Fitted with Finishing Wheel, Sizes 5 to 12; ½ inch in Diameter; Weight per dozen about 2 lbs.....$18.00

One-half Dozen in a Cardboard Box.

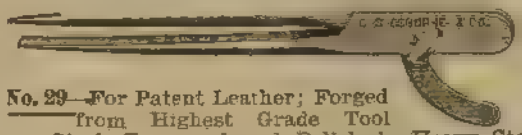
OVERSTITCH OR FINISHING WHEELS.

Per Dozen

No. 41—Polished Tempered Steel Overstitch, or Finishing, Wheel ½ inch in Diameter; Sizes 5 to 12; For No. 40½ Box Carriage; Weight per dozen about 4 oz..... $7.00

Sizes 5 to 12 indicate that many points to the inch. Thus, Size 8 Finishing Wheel will have 8 Points to the inch. One Dozen in a Cardboard Box.

COMPASSES.



Per Dozen

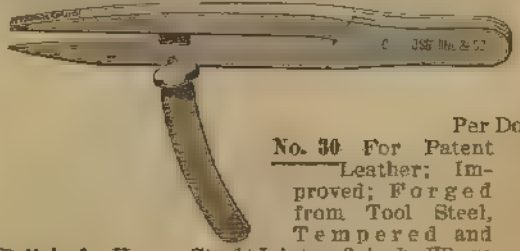
No. 29—For Patent Leather; Forged from Highest Grade Tool Steel, Tempered and Polished; Heavy Steel Joint; 1 7/16 inch Wing; With Set Screw; Turned over Tip; Sharpened Corners; 5½ inches Long; Weight per dozen about 2½ lbs.$18.50

Per Dozen

No. 30½—For Patent Leather; Improved; Forged from Highest Grade Tool Steel, Tempered and Polished; Heavy Steel Joint; 2 inch Wing, with Set Screws; Furnished with Four Assorted Points, or Scratchers; 6 inches Long; Weight per dozen about 3 lbs $36 00

No. 26—Improved; Forged from Highest Grade Tool Steel, Tempered and Polished; Heavy Head Steel Rivet at Joint.

Size, inches	5	6	7
Weight per dozen about, lbs.	2½	3	4
Per dozen	$13.00	13.00	14.00



Per Dozen

No. 30—For Patent Leather; Improved; Forged from Tool Steel, Tempered and Polished; Heavy Steel Joints; 2 inch Wing; With Set Screw; Tip, or Scratcher, Riveted on; One Side Blunt, Other Side Sharp; 5¼ inches Long; Weight per dozen about 3 lbs..$18.50

Per Dozen

No. 28—Forged from Tool Steel, Tempered and Polished; Heavy Head Steel Rivet at Joint; 6 inches Long; Weight per dozen about 3 lbs.. $5.70

One-half Dozen in a Cardboard Box.

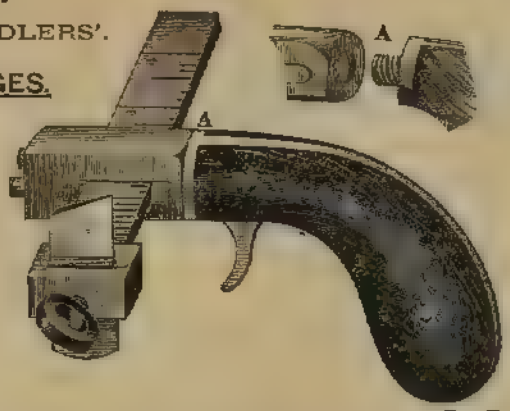
TOOLS.

OSBORNE'S SADDLERS'.

DRAW GAUGES.

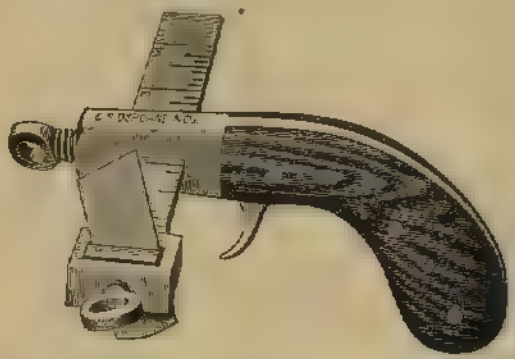
Per Dozen

No. 51—Improved; Solid Brass Frame, with Inlaid Rosewood Handle, Highly Polished, Brass Screwed, 5 inches Long; Shaped to Fit Snugly in Palm of Hand; 4 inch Polished Steel Slide, Graduated in ⅛ inch, with Set Screws; Furnished with One Highly Tempered Steel Blade; Weight per dozen about 10 lbs.....$43 50



Per Dozen

No. 571—Latta's Patent; Polished Cast Steel Frame, with Inlaid Polished Rosewood Detachable Handle, Brass Riveted, 5 inches Long, Shaped to Fit Snugly in Palm of Hand; 4 inch Polished Steel Slide, Graduated in ⅛ inch, with Set Screws; Furnished with One Highly Tempered Steel Blade; Weight per dozen about 10 lbs.....$43.50



Per Dozen

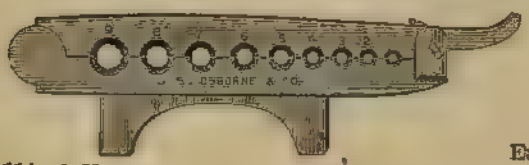
No. 52½—Improved; Polished Cast Steel Frame, with Inlaid Polished Rosewood Handle 5 inches Long, Brass Riveted; 4 inch Polished Steel Slide, Graduated in ⅛ inch, with Set Screws; Furnished with One Highly Tempered Steel Blade; Weight per dozen about 10 lbs $33.00

Per Dozen

No. 51½—Improved; Patent Hollow Malleable Iron Handle, 5 inches Long, Japanned, with Polished Head; 4 inch Polished Steel Slide, Graduated in ⅛ inch; With Set Screws; Furnished with One Highly Tempered Steel Blade; Weight per dozen about 12 lbs.....$25.00

One-half Dozen in a Cardboard Box.

REIN ROUNDERS.



Each

No. 114—9 Holes; Diameter of Smallest Hole ⅛ inch; Largest ⅝ inch; Hand Forged Steel, Hardened and Polished, with Two Legs to be Set in Block or Bench; Hinged Joint and Fastened with Steel Pin; Length over all 9½ inches; Width 1½ inches; Thickness 7/16 inch; Weight each about 1½ lbs..... $5.00

Each

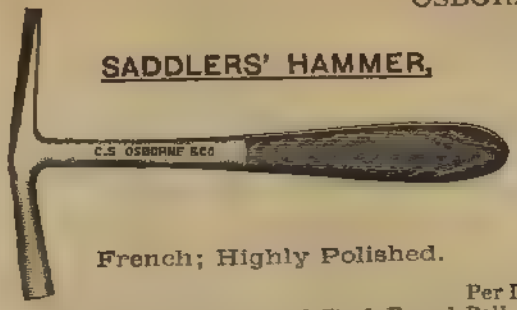
No. 110—11 Holes; Diameter of Smallest Hole ⅛ inch; Largest ¾ inch; Hand Forged Steel, Hardened and Polished; Japanned Feet with Holes to Screw or Nail Down; Hinged Joint and Fastened with Steel Pin; With Thumb Screw on Top to Clamp Both Halves Tight; Length over all 12 inches; Width 1½ inches; Thickness ¾ inch; Height over all 3 inches; Weight each about 3½ lbs.. $8.00

Six in a Cardboard Box.

TOOLS.

OSBORNE'S SADDLERS'.

SADDLERS' HAMMER.



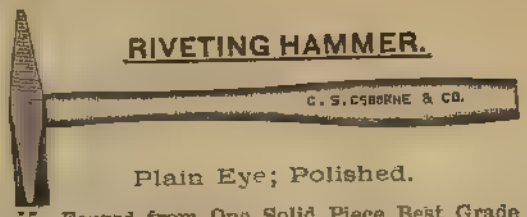
French; Highly Polished.

Per Dozen

No. 55—Highest Quality Forged Steel, Round Poll Tapering to Eye, ⅝ inch Hardened Face and Hardened Cross Pein; Length of Head 6½ inches; Solid Steel Handle, with Riveted Inlaid Polished Rosewood Grip; Length over all 11 inches; Weight per dozen about 10 lbs....$37.00

One-third Dozen in a Cardboard Box.

RIVETING HAMMER.



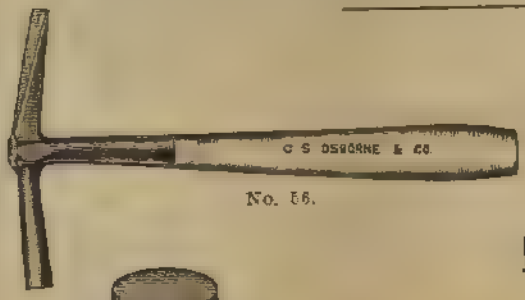
Plain Eye; Polished.

No. 57—Forged from One Solid Piece Best Grade Tool Steel, Round Poll, Hardened Face and Hardened Cross Pein; 11 inch Well Shaped White Hickory Handle

Sizes	2	3	4	5
Length of Head, inches	4	4⅜	4¾	5
Diameter of Face, inches	⅝	¾	¾	⅞
Weight per dozen about, lbs.	6½	8½	11	13
Per dozen	$11.80	12.20	12.80	16.00

One-half Dozen in a Cardboard Box.

RIVETING HAMMER.



No. 56.

Strap Eye; Filed and Polished. Per Dozen

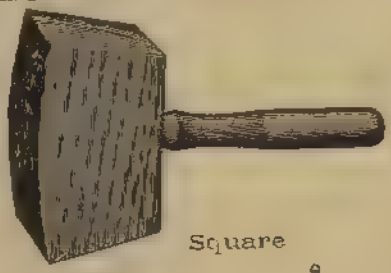
No. 56—Best Grade Cast Steel; Round Poll, Tapering to Eye, ⅝ inch Hardened Face and Hardened Beveled Edge Pein; Length of Head 5⅞ inches; 11 inch Round White Hickory Handle, Wedged in Strap Eye; Weight per dozen about 7 lbs.....$18.00

One-third Dozen in a Cardboard Box.

MALLETS.

Round.

Heavy Varnished Hickory Head; Plain Hardwood Handle Mortised in Head.



Square

Nos.	1	2	3
Length of Head, inches	5	5½	6
Diameter of Head, inches	3	3½	4
Length of Handle, inches	8½	8½	8¾
Weight per dozen about, lbs.	12	18	27
Per dozen	$1.50	2 00	2 50

Same as above WITH LIGNUMVITAE HEAD.

Nos.	5	6	7
Length of Head, inches	5	5½	6
Diameter of Head, inches	3	3½	4
Length of Handle, inches	9	8⅝	8⅝
Weight per dozen about, lbs.	22	34	42
Per dozen	$3.00	4.00	5.50

Nos.	8	9	10
Length of Head, inches	6	6½	7
Width at Middle, inches	3⅜	3⅜	3⅞
Size of Face, inches	2½x3½	2¾x3¾	3x4
Length of Handle, inches	8	8⅜	8½
Weight per dozen about, lbs.	18	22	24
Per dozen	$2.00	2 50	3.00

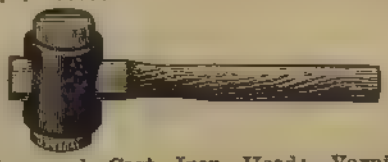
Same as above WITH LIGNUMVITAE HEAD.

Nos.	12	13
Length of Head, inches	6½	7
Width at Middle, inches	3⅜	4
Size of Face, inches	2¾x3¾	3x4
Length of Handle, inches	8⅜	8½
Weight per dozen about, lbs.	36	38
Per dozen	$4 75	5 75

Round.

Per Dozen

No. 14—Heavy Varnished Hickory Head; Plain Hardwood Handle, Mortised in Head; Polished Cast Iron Band on Each End of Head; Length of Head 6 inches; Diameter of Faces 4 inches; Length of Handle 8¾ inches; Weight per dozen about 30 lbs.....$5.50



Per Dozen

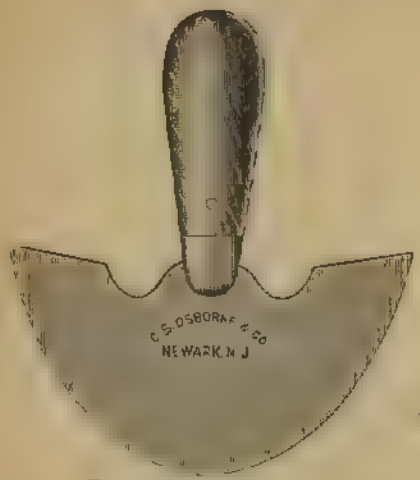
No. 15—Japanned Cast Iron Head; Varnished Hickory Faces Fitted in Head; Varnished Hardwood Handle, Mortised in Head; Length of Head 4⅛ inches; Diameter of Faces 2½ inches; Length of Handle 9 inches; Weight per dozen about 34 lbs.....$4 00

Packed Loose.

TOOLS.

OSBORNE'S SADDLERS'

SADDLERS' KNIVES.



Round Knives.

Highest Grade Crucible Hand Forged Steel Blade, Tempered and Polished; Polished Oval Cocoa Handle 3¾ inches Long; With Solid Polished Brass Ferrule.

Per Dozen

No. 70—Blade 5 inches Wide, 2⅜ inches Deep.....$24.80

No. 70U—Blade 6 inches Wide, 2¾ inches Deep 29.00

No. 70X—Blade 6½ inches Wide, 3 inches Deep. 36.00

Weight per dozen about 3 lbs.

Odd Head Knives.

Per Dozen

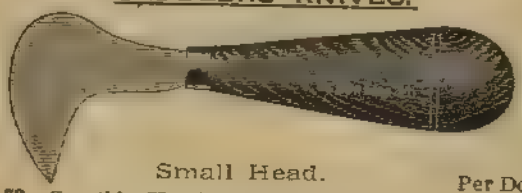
No. 74—Crucible Hand Forged Steel, Tempered and Polished; 4¼ inches Wide, 1⅝ inches Deep; Polished Round Rosewood Handle 3½ inches Long, with Brass Polished Ferrule; Length over all 5¼ inches; Weight per dozen about 2 lbs.....$12.80

Head Knives; Philadelphia Pattern.

Per Dozen

No. 75—Crucible Hand Forged Steel Blade, Tempered and Polished, 4½ inches Wide, 2¼ inches Deep; Polished Oval Rosewood Handle 3½ inches Long, with Solid Heavy Polished Brass Ferrule; Weight per dozen about 2½ lbs.....$15.50

SADDLERS' KNIVES.



Small Head.

Per Dozen

No. 73—Crucible Hand Forged Steel Blade, Tempered and Polished, 2⅛ inches Wide, 2⅛ inches Deep; Polished Round Rosewood Handle 3½ inches Long, with Polished Brass Ferrule; Length over all 5¾ inches; Weight per per dozen about 2 lbs $8.00

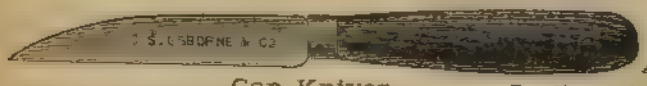
TRIMMING KNIVES.

Square Point.

Per Dozen

No. 76—Tempered Hand Forged Steel Blade, Polished, ¾ inch Wide, 3⅞ inches Long; Polished Round Rosewood Handle 4 inches Long, with Brass Ferrule; Weight per dozen about 1 lb. $5 00

CAP KNIVES.



Cap Knives.

Per Dozen

No. 79—Tempered Hand Forged Steel Blade, Polished, ⅝ inch Wide, 3⅞ inches Long; Polished Round Rosewood Handle 4 inches Long, with Brass Ferrule; Weight per dozen about 1 lb. $5.10

Cap Knives.

Per Dozen

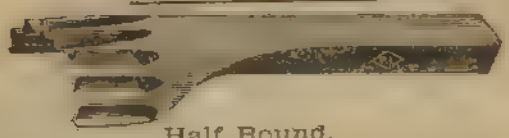
No. 80—Tempered Hand Forged Steel Blade, Polished, ⅝ inch Wide, 3⅞ inches Long; Polished Flat Rosewood Handle 3⅝ inches Long; Shank of Blade Riveted in Handle; Weight per dozen about 1 lb..... $9.30

One-half Dozen in a Cardboard Box.

TOOLS.

OSBORNE'S SADDLERS'.

PINKING IRONS.



Half Round.

No. 66—Cut out of One Solid Piece Highest Grade Tool Steel Oil Tempered and Polished; Diamond Shaped Teeth. Length of Shank 3 inches; Length over all 4¾ inches.

Size, inches	1/2	5/8	3/4
Weight per dozen about, lbs.	2	2	2
Per dozen	$8.00	8.00	8.00

One Dozen in a Cardboard Box.

COLLAR PALMS.

Per Dozen.

No. 93—Hardened Steel Highly Polished and Hollowed Palm; 1¼ inch Tongue Length over all 4¾ inches. Weight per dozen about 5½ lbs. $11.00

CUTTING NIPPERS.

Per Dozen

No. 94—Forged from Best Grade Tool Steel, Oil Tempered; Polished Jaws, Natural Finish Handles, Heavy Hinged Steel Rivet at Joint; Length over all 6 inches. Weight per dozen about 8 lbs. $28.00

One-Half Dozen in a Cardboard Box.

STITCHING HORSE.

By making frequent calls on our Mail Order Department, you will be able to keep your stock complete and up-to-date and hold your trade at home.

Each

No. 4—Sullivan's Stitching Horse, Hardwood, Plain Finish, Length of Seat over all 26 inches, 7½ inches Wide at Crest, Height to Seat from Floor 2[illegible] inches, Length of Jaws over all 1[illegible] inches, Width 8 inches. All Mortises Pegged and Tapered. Opening Jaws, or Trough from which a Strap is Fastened Passing through Head of Seat and through Off Jaw and Fastened to Hinged Jaw. Weight each about 25 lbs. .. $4.50

Strap for No. 4 Stitching Horse, 1¼ inches Wide ..... .80

One Dozen Crates with Jaws and Strap. No Strap Included.

TOOLS.

OSBORNE'S SADDLERY.

Japanned Iron Frame, Polished Steel Rolls, Imported Cast Steel Blades, Welded on, Norway Iron, Highly Tempered and Polished, Adjustable to Split Leather Any Thickness Desired.

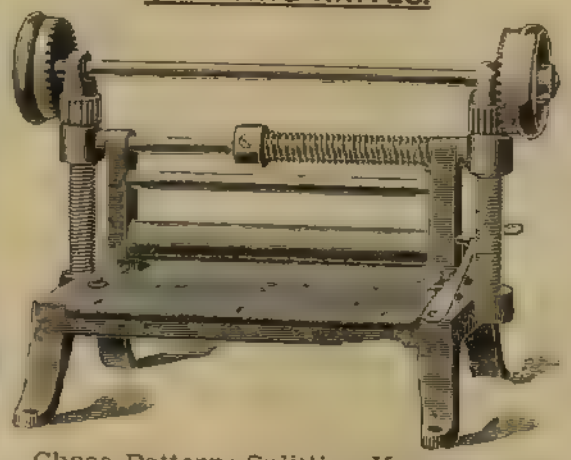
SKIVING MACHINE.

Splitter's Pattern, Combination Splitting and Lap Skiving Machine. Each

No. 170 Size of Base or Stand, 8 INCHES LONG, 4½ inches Wide, 4½ inches High, 6 inch Blade; Weight each about 7 lbs..... $16.50

No. 170/S—Size of Base or Stand, 10 INCHES LONG, 5 inches Wide, 5 inches High, 8 inch Blade; Weight each about 8 lbs..... 19.00

SPLITTING KNIVES.



Chase Pattern; Splitting Knives Each

No. 171 Size of Base or Stand, 10 INCHES LONG, 5½ inches Wide, 9 inches High; 8 inch Blade; Weight each about 16 lbs $13.00

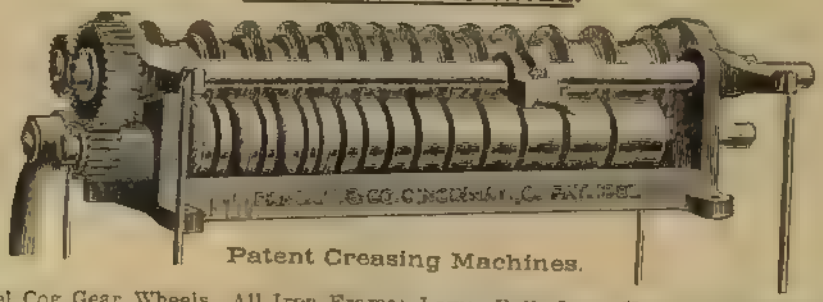
No. 171/S—Size of Base or Stand, 12 INCHES LONG, 6½ inches Wide, 10 inches High; 10 inch Blade; Weight each about 18 lbs.... 15.50

Extra Blades for No. 171 ..... 2.00

Extra Blades for No. 171/S 2.40

Packed Loose. Weight each about 1 lb.

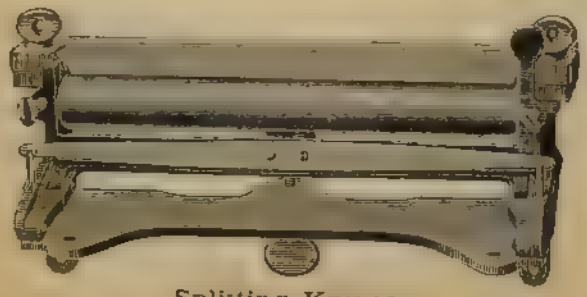
CREASING MACHINES.



Patent Creasing Machines.

No. 10½—Four Steel Cog Gear Wheels, All Iron Frame; Lower Rolls Iron; Upper Rolls Steel; Creases Flat ½, ⅝, ¾, ⅞, 1, 1⅛, 1¼, 1½, 1¾ inch, Round Edge, Single and Double Crease and Raised 1, 1⅛, 1¼, 1½ inch; Iron Crank 18 inches Long, with 6 inch Wood Grip, Machine Set up Stands 10 inches High, 9 inches Wide and 28 inches Long; Japanned Frame, Polished Rolls; Any Style of Roll, from ¾ to 1½ inches Wide, with ¾ inch Hole, may be Worked on the End Shaft of this Machine; Weight each about 68 lbs ..... Each $68.00

One in a Wood Box.



Splitting Knives

SPLITTING KNIVES.

No. 86—Size of Base or Stand, 8 inches Long, 4½ inches Wide, 4½ inches High; 6 inch Blade; Weight each about 6 lbs..... Each $8.50

No. 86/S—Size of Base or Stand, 12 inches long, 15 inches Wide, 5 inches High; 8 inch Blade; Weight each about 8 lbs..... 9.50

Extra Blades for No. 86; Weight each about 1 lb.. 3.40

Extra Blades for No. 86/S: Weight each about 1 lb. 4.70

Packed Loose.

TRADE MARK: CHIPAWAY. REGISTERED.

TOOLS.

OSBORNE'S SADDLERS'.

SADDLERS' PLIERS.

Per Dozen

No. 98—Forged from Tool Steel, Oil Tempered and Polished; Flat Nose, Heavy Headed Steel Rivet at Joint, Face of Jaws Scored to prevent Slipping, Length over all 7½ inches, Weight per dozen about 6 lbs.....$11.00

SIDE CUTTING PLIERS.

Per Dozen

No. 101—Forged from Best Grade Tool Steel, Oil Tempered; Polished Jaws; Natural Finish Handles; Flat Nose; Heavy Headed Steel Rivet at Joint; Face of Jaws Scored to prevent Slipping, With Beveled Side Cutting Blades; Length over all 6 inches, Weight per dozen about 5 lbs.....$22.50

SHOEMAKERS' PINCERS.

Walker's.

Per Dozen

No. W—Cast Steel; Steel Rivet at Joint, Jaws have Teeth to prevent slipping; Length 7½ inches; Weight per dozen about 6½ lbs. . . $6.75

PINCER PLIERS.

No. 99 Forged from Tool Steel, Oil Tempered and Polished, Flat Nose Heavy Headed Steel Rivet at Joint, Toothed Jaws to prevent slipping.

Length over all, inches.....	7½	9½
Weight per dozen about, lbs.....	7	7
Per dozen $15.30		18.30

PAD SCREW PLIERS.

Per Dozen

No. 102—Forged from Tool Steel; Hardened and Polished Jaws; Black Lacquered Handle, Heavy Headed Steel Rivet at Joint; Length over all 6¼ inches; Weight per dozen about 4½ lbs $21.00

No. 102N—Nickel Plated, Otherwise same as No. 102 ..... 27.50

SADDLERS' PINCERS.

Osborne's.

Per Dozen

No. 104—Forged from Tool Steel, Tempered and Polished; Round Nose; Heavy Headed Rivet at Joint, Deep Toothed Jaws to insure good hold Jaw ¾ inch Wide; Length over all 8 inches Weight per dozen about 16 lbs..... $28.00

One-half Dozen in a Cardboard Box.

SHOE HAMMERS.

No CSH-0.

CHIPAWAY*

Drop Forged from One Solid Piece of Special Crucible Steel; Hardened Face; Handled with Extra Grade White Hickory Handle, Fastened with our GRELLNER PATENT WEDGE.

Round Bell Face; Polished; With Black Neck

Nos.	CSH/0	CSH1	CSH2
Weight without Handle, ozs.	11	13	15
Length over all, inches	9½	9½	9½
Weight per dozen about, lbs.	12	14	16
Per dozen	$5.25	5.50	5.75

One-half Dozen in a Cardboard Box, Six Dozen in a Case.

HARNESS TOOLS.

OSBORNE'S SADDLERS'.

Claws.

Per Dozen

No. 122—Forged from Highest Grade Tool Steel, Polished and Hardened, Heavy Claw; Round Shank; Polished Rosewood Handle 3½ inches Long, with Brass Ferrule; Length over all 6½ inches; Weight per dozen about 3 lbs.. $7.00

Per Dozen

No. 123—Forged from Highest Grade Tool Steel, Polished and Hardened; Extra Heavy Claw, and Round Shank through Handle, Riveted; Polished Rosewood Handle 3½ inches Long, with Heavy Brass Ferrule; Length over all 7 inches; Weight per dozen about 4¼ lbs.....$12.80

Claws.

Per Dozen

No. 124—Forged from Best Grade Tool Steel, Polished and Hardened; Octagon Shank through Handle, Riveted; Polished Rosewood Handle 3½ inches Long, with Brass Ferrule; Length over all 6 inches; Weight per dozen about 2 lbs..... $9.50

Per Dozen

No. 124½ French, with Drop under Claw; Otherwise same as No. 124 Weight per dozen about 2 lbs $9.50

Edge.

Per Dozen

No. 125—Common; Hand Forged Tool Steel, Flat Shank; Polished Rosewood Handle, with Shoulder and Brass Ferrule, 3½ inches Long; Length over all 5 inches; Weight per dozen about 1 lb..... $3.50

Per Dozen

No. 126—Best; Hand Forged Tool Steel, Flat Shank; Polished Rosewood Handle, with Shoulder and Brass Ferrule, 3½ inches Long; Length over all 6 inches; Weight per dozen about 1 lb..... $9.50

Edge.

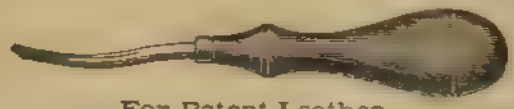
Per Dozen

No. 127—Round Edge Trimming; For Harness Leather of Any Thickness; Forged from Highest Grade Tool Steel, Tempered and Polished; Octagon Shank; Polished Rosewood Handle, with Shoulder and Brass Ferrule, 3½ inches Long; Length over all 6½ inches; Weight per dozen about 1 lb.....$18.00

Per Dozen

No. 132—Hand Forged Tool Steel, Tempered and Polished; Octagon Shank; Polished Rosewood Handle, with Shoulder and Brass Ferrule, 3½ inches Long; Length over all 6¼ inches; Weight per dozen about 1½ lbs.....$16.80

Size	0	1	2	3	4	5	6	7	8
Width, inches	1/32	1/16	1/8	3/16	1/4	5/16	3/8	7/16	1/2



For Patent Leather.

Carving.

Per Dozen

No. 134—Hand Forged from Highest Grade Tool Steel, Tempered and Polished; Flat Shank; Polished Rosewood Handle, with Shoulder and Brass Ferrule, 3½ inches Long; Length over all 6½ inches; Weight per dozen about 1 lb..... $9.30

Per Dozen

No. 135—Hand Forged from Highest Grade Tool Steel, Tempered and Polished; Flat Shank; Polished Rosewood Handle, with Shoulder and Brass Ferrule, 3½ inches Long; Length over all 6½ inches; Weight per dozen about 1 lb $9.30

Size	0	1	2	3	4	5	6	7	8
Width, inches	1/32	1/16	1/8	3/16	1/4	5/16	3/8	7/16	1/2

One-half Dozen in a Cardboard Box.

HARNESS TOOLS.

OSBORNE'S SADDLERS'.

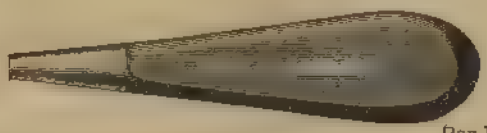
Rein Trimming. Per Dozen

No. 137—Hand Forged from Highest Grade Tool Steel, Tempered and Polished; Flat Shank; Polished Rosewood Handle, with Shoulder and Brass Ferrule, 3½ inches Long; Length over all 6½ inches; Weight per dozen about 1 lb $12.70

Rosette Cutters Per Dozen

No. 139—Cut from One Solid Piece Highest Grade Tool Steel, Oil Tempered and Polished; Octagon Shank, 3½ inches Long; Length over all 5 inches; Cuts Rosette 1 inch in Diameter; Weight per dozen about 1 lb..... $125.00

AWL HAFTS.



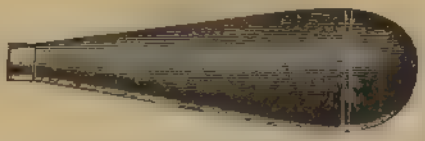
Per Dozen

No. 140—Flat, Ebony Beveled Edge, Plain Finish; German Silver Name Plate; With Heavy Brass Taper Ferrule; Length over all 4 inches; Weight per dozen about 1 lb..... $3 60

No. 0140—Without Name Plate; Plain Edge; Otherwise same as No. 140; Weight per dozen about 1 lb 2 60

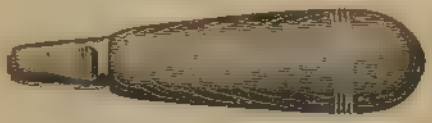
Per Dozen

No. 140½—Flat, Imitation Ebony, Plain Edge and Finish; With Heavy Brass Taper Ferrule; Length over all 4 inches; Weight per dozen about 1 lb..... $1 60



Per Dozen

No. 143—Round, Black Enameled Hickory With Brass Ferrule, Length over all 3½ inches; Weight per dozen about 1 lb..... $0.75



Per Dozen

No. 146—Round; Polished Rosewood Handle; With Polished Steel Chuck, Length 3¾ inches over all; With Steel Wrench, for Setting Chuck, 3½ inches Long; Weight per dozen about 2 lbs..... $3.20

Per Dozen

No. 141—Round, Black Enameled Hickory; With Heavy Brass Taper Ferrule; Length over all 4 inches, Weight per dozen about 1 lb..... $1.40

No. 141R—Polished Rosewood, Otherwise same as No. 141, Weight per dozen about 1 lb 1.70

No. 141½—Black Enameled Oval Hickory; Otherwise same as No. 141, Weight per dozen about 1 lb..... 1.40

One-half Dozen in a Cardboard Box.

BOLT CLIPPERS.

"EASY."

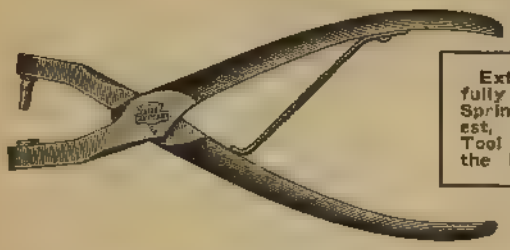
Tempered, Oil Finish; Detachable Cast Steel Cutting Jaws; Japanned Cast Iron Compound Lever Handles, with Socket Joints; Rubber Bumpers between Handles.

Nos	1E	2E
Length, inches	14	30
Cut Bolt up to, inches	⅜	½
Weight per pair about, lbs	1¼	7½
Per pair	$5 00	[illegible]

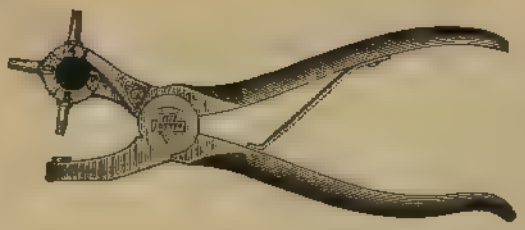
Packed Loose

TRADE MARK
E. C. SIMMONS' *KEEN KUTTER*,
REGISTERED.

PUNCHES.



Extra Frames; Carefully Tempered Steel Springs; The Smoothest, Best Finished Tool of Its Kind on the Market.



Spring, Single Tube.

Per Dozen

No. 42—*KEEN KUTTER**, Full Polished Malleable Iron Handles and Jaws; Highest Grade Crucible Steel Swaged and Tempered Tube; Heavy Rivet at Joint; Tempered Steel Spring Riveted to Handle; Assorted Size Tubes, Nos. 4, 6, 8 and 10 in a dozen; Weight per dozen about 10 lbs. $8.00
One-half Dozen in a Wood Box.

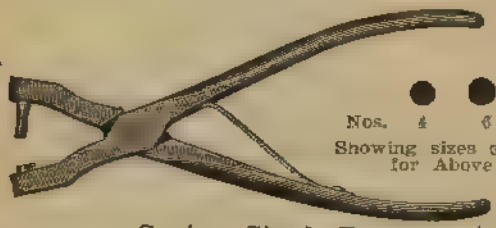
Extra Tubes for No. 42 Punches, 3 Dozen Assorted, Nos. 4, 6, 8 and 10 in a Cardboard Box. 3.00

Revolving, 4 Tube.

Per Dozen

No. 14—*KEEN KUTTER**; Full Polished Malleable Iron Handles and Jaws; Highest Grade Crucible Steel, Swaged and Tempered Tubes; Heavy Rivet at Joint; Tempered Steel Spring Riveted to Handle; Each Punch Fitted with One Tube each Nos. 4, 6, 8 and 10; Weight per dozen about 11 lbs.....$21.00
One-half Dozen in a Wood Box.

Extra Tubes for No. 14 Punches, 3 Dozen Assorted, Nos. 4, 6, 8 and 10 in a Cardboard Box 3.00



Showing sizes of Punch Tubes for Above Punches.

Spring, Single Tube.

Per Dozen

No. 32—STANDARD; Full Polished Cast Iron Handles and Jaws Tempered Tool Steel Tube; Tempered Steel Spring Riveted to Handle; Assorted Size Tubes Nos. 4, 6, 8 and 10 in a dozen; Weight per dozen about 13 lbs. $5.75
One Dozen in a Cardboard Box.

Extra Tubes for No. 32 Punches..... 2.00

Revolving, 4 Tube.

Per Dozen

No. 26—STANDARD: Full Polished Cast Iron Handles and Jaws; Tempered Tool Steel Tubes; Tempered Steel Spring Riveted to Handle; Each Punch Fitted with One Tube each Nos. 4, 6, 8 and 10; Weight per dozen about 9 lbs.....$13.50
One-half Dozen in a Cardboard Box

Extra Tubes for No. 26 Punches..... .. .. 2.40

OSBORNE'S.

Full Polished Cast Steel Handles and Jaws; Best Grade Tempered Tool Steel Tubes to Screw in; Tempered Steel Spring Riveted to Handle

Saddlers' Spring.

Per Dozen

No. 153 Osborne's Spring Single Tube; Fitted with One Tube; Assorted Size Tubes Nos. 1 to 8; Weight per dozen about 7 lbs.....$15.60

Extra Tubes for No. 153 Punch, Nos. 1 to 8; Weight per dozen about ¼ lb..... 4.80

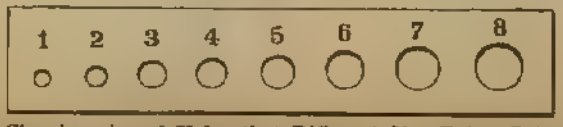
Saddlers' Revolving.

Per Dozen

No. 155—Osborne's Revolving; 4 Tubes; Each Punch Fitted with One Tube each, Nos. 3, 4, 5 and 6; Weight per dozen about 8 lbs.....$30.00

No. 156—Osborne's Revolving; 6 Tubes; Each Punch Fitted with One Tube each, Nos 1, 2, 3, 4, 5 and 6, Weight per dozen about 9 lbs. 36.00

One-half Dozen in a Cardboard Box.



Showing size of Holes that Different Size Tubes Cut.

HARNESS TOOLS.

OSBORNE'S.

Strap End Punch.

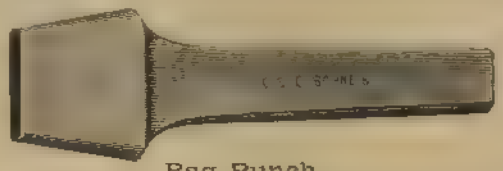
No. 150—Forged from Highest Grade Tool Steel, Tempered and Polished, Shanks ½-inch Wide, ¾-inch Thick, 3 inches Long; Length over all 4½ inches.

Size, inches	7/8	1¼
Weight per dozen about, lbs.	2½	3
Per dozen	$14.50	25.00

Strap End Punch.

No. 150½—Forged from Highest Grade Tool Steel, Tempered and Polished, Octagon Shank; Polished Rosewood Handle, with Shoulder and Brass Ferrule, 3½ inches Long; Length over all 6 inches.

Size, inches	1/4	1/2	5/8
Weight per dozen about, lbs.	2	2	2
Per dozen	$25.00	25.00	25.00
Size, inches	3/4	7/8	1¼
Weight per dozen about, lbs.	2	2	2
Per dozen	$25.00	25.00	29.00



Bag Punch.

Forged from Highest Grade Tool Steel, Tempered and Polished, Shank 3½ inches Long; Length over all 5 inches.

No. 151—Bag Punch

Size, inches	1/2	5/8	3/4	7/8
Weight per dozen about, lbs.	6	6	6	6
Per dozen	$21.50	21.50	21.50	21.50
Size, inches	1	1⅛	1¼	1½
Weight per dozen about, lbs.	6	6	6	6
Per dozen	$21.50	21.50	21.50	21.50

Trace Punch.

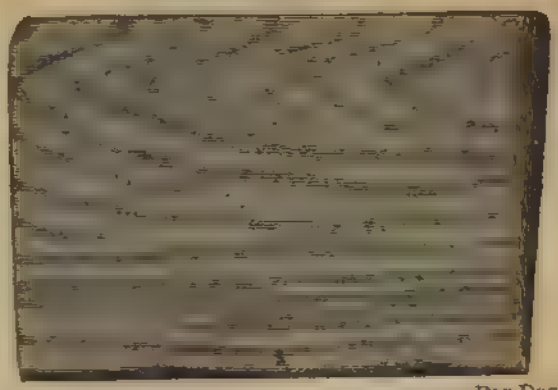
Forged from Highest Grade Tool Steel, Tempered and Polished, Shank 3½ inches Long; Length over all 5 inches.

No. 152—Trace Punch.

Size, inches	5/8	3/4	7/8	1
Weight per dozen about, lbs.	6	6	6	6
Per dozen	$22.50	22.50	22.50	22.50
Size, inches	1⅛	1¼	1½	
Weight per dozen about, lbs.	6	6	6	
Per dozen	$22.50	22.50	22.50	

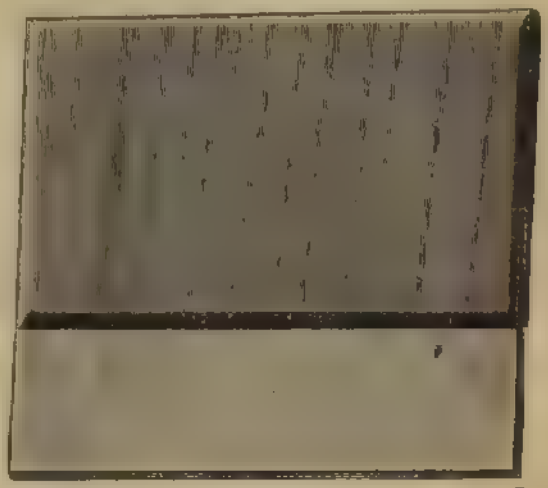
One Dozen in a Cardboard Box.

SLICKERS.



Per Dozen

No. 168L—LIGNUMVITAE, Varnished; 5¼ inches Wide; 4 inches High; ⅞ inch Thick at Top; Weight per dozen about 9 lbs. $10.50



Per Dozen

No. 168/S—POLISHED STEEL SLICKER; ¼ inch Thick; Set in Varnished ROSEWOOD HANDLE; 5 inches Wide, 3 inches High, 1 inch Thick; Height over all 4½ inches; Weight per dozen about 15 lbs. $11.50

No. 167H—GLASS SLICKER; Otherwise same as No. 168/S; Weight per dozen about 9 lbs. 15.50

No. 167—GLASS ONLY; Same as in No. 167H; 5 inches Wide; 3 inches High; 5/16 inch Thick; Weight per dozen about 6 lbs. 6.30

One-half Dozen in a Cardboard Box.

LOOP STICKS.

No. 10—HICKORY; Straight, Plain Finish; 12 inches Long; 10 Sticks to a Set.

						Per Set of (10)
Width, inches	3/8	1/2	5/8	3/4	7/8	$1.60
Thickness, in.	1/8	3/16	7/32	1/4	9/32	
Width, inches	1	1⅛	1¼	1⅜	1½	
Thickness, in.	9/32	5/16	3/8	13/32	7/16	

One Set in a Cardboard Box; Weight per Set about 1½ lbs.

PADLOCKS.

TRADE MARKS
E. C. SIMMONS' *KEEN KUTTER*
AND
"LACLEDE,"
REGISTERED

Cuts Full Size.

No. 100.

KEEN KUTTER*

Per Dozen

No. 100—*KEEN KUTTER** 2 inch CAST BRASS CASE; Hard red Brass Spring Shackle; Spring of Shackle Closed, 3/4x1 1/16 inch; 2 Flat Steel Nickel Plated Keys; 6 Secure Brass Levers; 36 CHANGES; Weight per dozen about 6 lbs. **$10.00**

No. 100L—Same as No. 100, except Keyed All Alike **$10.00**

No. 101—Same as No. 100, except with 9 INCH BRIGHT STEEL PATENT LINK CHAIN **12.00**

No. 101L—Same as No. 101, except Keyed All Alike **12.00**

No. 100 *KEEN KUTTER** Padlock is an exact reproduction of our *KEEN KUTTER* Trade Mark.

THE CONSTRUCTION—The interior workings are of brass, excepting the spring, which is made of Heavy Phosphor Bronze; the brass rivets are cast in the case and so arranged as to form a support for the case as well as binding posts, thus protecting the mechanism from a crushing force. A Lubricant of Graphite and Oil is used **in each Lock, Insuring Positive and Easy Action of the Levers.**

THE CASE—Is of polished cast brass. The Trade Mark on front of lock has a raised polished brass margin with the words *KEEN KUTTER* in raised, polished brass letters, relieved by red enameled matted back ground.

THE SHACKLE—The shackle is of hardened polished brass, with the words "E. C. Simmons" embossed on one side and St. Louis U. S. A. on the other, and the interior construction is so arranged as to lock both front **and back, making it almost impossible for the shackle to be forced open.**

THE KEYS—Each Padlock is furnished with two flat steel nickel plated keys, showing a miniature perfora**tion of the Trade Mark in the bow.**

THE CHANGES—Locks are made regularly in 36 CHANGES, thus giving unusual security and making all **locks different in a dozen.**

One-half Dozen in a Cardboard Box.

WROUGHT PADLOCKS.

No. 3044-2K—2¼ inch WROUGHT IRON CASE, JAPANNED; Self-locking Wrought Iron Spring Shackle; Spacing of Shackle, Closed ¾x1 3/16 inches; Revolving Key Pin, Double Chamber, Bridge Wards; Raised Brass Bushing Front and Back; 2 Steel Double Bitted Keys to each Lock; 6 CHANGES; Weight per dozen about 5 lbs. ..... $8.35 Per Dozen

No. 3020-2K—2½ inch WROUGHT IRON CASE, JAPANNED; Heavy Wrought Iron Shackle, without Spring; Spacing of Shackle, Closed, ¾x1⅛ inches; Wheel Side and Bridge Wards; Raised Solid Brass Bushing, Double Chamber; 2 Double Bitted Malleable Iron Drilled Keys to each Lock; 6 CHANGES; Weight per dozen about 6½ lbs. ..... $8.20 Per Dozen

No. 3034—2¼ inch WROUGHT IRON CASE, JAPANNED; Self-locking Wrought Iron Spring Shackle; Spacing of Shackle, Closed, ¾x1¼ inch; 1 Wheel Ward; Brass Keyhole Drop, 8 inch Japanned Steel Chain; Malleable Iron Drilled Key to each Lock; 6 CHANGES, Weight per dozen about 5 lbs. . $7.00 Per Dozen

No. 3076-2K—2¼ inch WROUGHT IRON CASE, JAPANNED; Self-locking Wrought Iron Spring Shackle; Spacing of Shackle, Closed, ¾x1¼ inch; Revolving Key Pin; 1 Wheel and Side Ward; Brass Bushing Front and Back; Brass Keyhole Drop; 8 inch Japanned Steel Chain; 2 Flat Steel Keys; 6 CHANGES; Weight per dozen about 5½ lbs. ..... $9.00 Per Dozen

No. 3066-2K—2¼ inch WROUGHT IRON CASE, JAPANNED; Self-locking Wrought Iron Spring Shackle; Spacing of Shackle, Closed, ¾x1 3/16 inch; Revolving Key Pin; Bridge Ward; Double Chamber, Brass Bushings Front and Back; 8 inch Japanned Steel Chain, 2 Flat Steel Double Bitted Keys to each Lock; 6 CHANGES, Weight per dozen about 6 lbs. ..... $10.00 Per Dozen

No. 3029—2½ inch WROUGHT IRON CASE, JAPANNED, with Brass Star Rivets both Back and Front, Heavy Self-locking Wrought Iron Spring Shackle; Spacing of Shackle, Closed, ⅞x1¼ inches; Bridge Wards; 2 Tumblers; Fancy Brass Keyhole Drop, 9 inch Japanned Steel Chain; 1 Heavy Malleable Iron Drilled Key to each Lock; 12 CHANGES; Weight per dozen about 8 lbs. ..... $15.00 Per Dozen

One-half Dozen in a Cardboard Box.

PADLOCKS.

Per Dozen

No. 185B—1½ INCH WROUGHT STEEL CASE, BRASS PLATED; Malleable Iron Self-locking Spring Shackle, Nickel Plated; Spacing of Shackle, Closed, ⅝x¾ inch; 2 Flat Steel Nickel Plated Keys to each Lock; 4 CHANGES; Weight per dozen about 1½ lbs.. $1.75

Per Dozen

No. 28¼—1½ INCH WROUGHT BRASS CASE, SATIN DIP FINISH; Malleable Iron Self-locking Spring Shackle, Black Enameled, Spacing of Shackle, Closed, ½x⅝ inches; 2 Flat Steel Nickel Plated Keys to each Lock; 4 CHANGES, Weight per dozen about 1½ lbs. $1.90

Per Dozen

No. 2988¼—1½ INCH WROUGHT STEEL CASE, BLACK ENAMELED; Malleable Iron Self-locking Spring Shackle, Brass Plated; Spacing of Shackle, Closed, ⅝x⅝ inch; 2 Flat Steel Nickel Plated Keys to each Lock; 5 CHANGES; Weight per dozen about 3 lbs. ... $1.90

Per Dozen

No. 1905B—RUGBY; 1⅞ INCH WROUGHT STEEL, BRASS PLATED CASE; Self-locking Steel, Brass Plated, Spring Shackle; Spacing of Shackle, Closed, ¾x1 5/16 inch; 1 Steel Lever and Ward; 2 Flat Steel Keys to each Lock; 6 CHANGES; Weight per dozen about 2 lbs. $2.00

Per Dozen

No. 4236—1¾ INCH WROUGHT STEEL BLACK ENAMELED CASE; Malleable Iron Self-locking Spring Shackle, Brass Plated Finish; Spacing of Shackle, Closed, ⅝x¾ inches; 2 Brass Plated Malleable Iron Keys to each Lock; 4 CHANGES; Weight per dozen about 3½ lbs. $2.25

KING KORN*.

Per Dozen

No. 613—2 INCH WROUGHT STEEL CASE, SATIN BRASS FINISH, with Embossed Letters; Malleable Iron Satin Brass Finish Self-locking Spring Shackle; Spacing of Shackle, Closed, ⅝x1 inch; 2 Malleable Iron Nickel Plated Drilled Keys to Each Lock; SIX CHANGES; Weight per dozen about 2 lbs.... $2.40

One-half Dozen in a Cardboard Box

TRADE MARK "TOGO" REGISTERED.

1104—

PADLOCKS.

Per Dozen

No. 496—2 INCH WROUGHT STEEL CASE, OLD COPPER FINISH, POLISHED; Malleable Iron Self-locking Spring Shackle, Old Copper Finish, Polished; Spacing of Shackle, Closed, ⅝x1 inch; 1 Tumbler; 2 Flat Steel Nickel Plated Keys to each Lock; 6 CHANGES; Weight per dozen about 4½ lbs. $2.40
One Dozen in a Cardboard Box.

BLACK BEAUTY*. Per Dozen

No. 610—2 INCH WROUGHT STEEL CASE, OXIDIZED COPPER FINISH, with Embossed Letters Old Copper Finish, Polished; Malleable Iron Nickel Plated Self-locking Spring Shackle; Spacing of Shackle, Closed, ⅝x1 inch; 2 Flat Steel Nickel Plated Keys to each Lock; 6 CHANGES; Weight per dozen about 3 lbs.... $2.40
One Dozen in a Cardboard Box.

TOGO*. Per Dozen

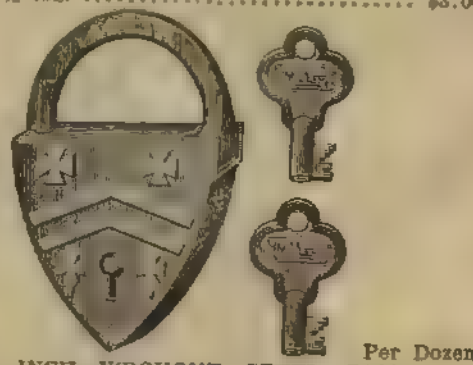
No. 11½J—2 INCH ENAMELED WROUGHT STEEL Case; Malleable Spring Shackle, Nickel Plated; Spacing of Shackle, Closed, 13/16x⅞ inch; 2 Nickel Plated Flat Steel Keys to each Lock; 6 CHANGES to the dozen; Weight per dozen about 3 lbs. $2.85

Per Dozen

No. 18—2 INCH STEEL CASE, BLACK ENAMELED, with Raised Parts Polished in Relief. Malleable Iron Self-locking Spring Shackle Nickel Plated; Spacing of Shackle, Closed, ⅞x11/16 inches; 2 Polished Steel Barrel Keys to each Lock; 5 CHANGES; Weight per dozen about 4¾ lbs. $3.00

Per Dozen

No. 4259—2 INCH WROUGHT STEEL BLACK ENAMELED CASE, with Raised Polished Letters; Malleable Iron Self-locking Spring Shackle, Nickel Plated; Spacing of Shackle, Closed, 1x1⅛ inches; 2 Brass Plated Malleable Iron Keys to each Lock; 12 CHANGES; Weight per dozen about 4½ lbs. $3.00



Per Dozen

No. 5250—2 INCH WROUGHT STEEL CASE, Black Enameled Finish, with Raised Emblematic Design; Malleable Iron Nickel Plated Self-locking Spring Shackle; Spacing of Shackle, Closed, 1⅛x⅞ inch; 2 Wrought Steel Levers; 2 Nickel Plated Steel Drilled Keys to each Lock; 6 CHANGES; Weight per dozen about 3½ lbs. $3.10

One-half Dozen in a Cardboard Box.

PADLOCKS.

STAR*. Per Dozen

No. 55—1¾ INCH WROUGHT STEEL CASE, BLACK ENAMELED, with Raised Parts Polished; Malleable Iron Self-locking Spring Shackle, Nickel Plated; Spacing of Shackle, Closed, ¾x1 inch; Warded; 2 Flat Steel Nickel Plated Keys to each Lock; 6 CHANGES; Weight per dozen about 2¼ lbs. $3.10

Per Dozen

No. 2867½—¼ INCH WROUGHT STEEL CASE, BLACK OXIDIZED FINISH; Raised Figure, Nickeled; Malleable Iron Self-locking Spring Shackle, Black Oxidized Finish; Spacing of Shackle, Closed, ⅞x1 inch; 2 Malleable Iron Nickel Plated Barrel Keys to each Lock; 3 Secure Levers; 12 CHANGES; Weight per dozen about 4½ lbs. $3.30

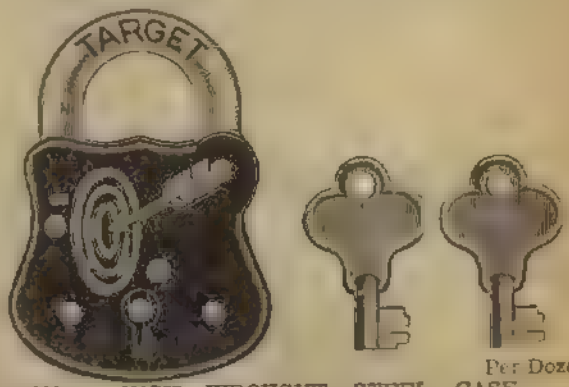
One Dozen in a Cardboard Box.

Per Dozen

No. 516—2 INCH WROUGHT STEEL CASE, BLACK JAPANNED FINISH; Malleable Iron Nickel Plated Self-locking Spring Shackle; Spacing of Shackle, Closed, ¾x1 inch; 1 Steel Lever and Ward; 2 Malleable Iron Nickeled Barrel Keys; 12 CHANGES; Weight per dozen about 3½ lbs. $3.15

Per Dozen

No. 5712—2 INCH WROUGHT STEEL CASE, BLACK ENAMELED; Malleable Iron Nickel Plated Self-locking Spring Shackle; Spacing of Shackle, Closed, ¾x15/16 inches; 2 Malleable Iron Nickel Plated Barrel Keys to each Lock; 12 CHANGES, Weight per dozen about 3 lbs. $3.40



Per Dozen

No. 411—2 INCH WROUGHT STEEL CASE, BLACK ENAMELED, with Raised Parts Polished; Malleable Self-locking Spring Shackle, Nickel Plated; Spacing of Shackle, Closed, ¾x15/16 inches; 2 Wrought Steel Levers; 2 Malleable Iron Nickel Plated Barrel Keys to each Lock; 12 CHANGES; Weight per dozen about 3½ lbs. $3.50

One-half Dozen in a Cardboard Box.

TRADE MARK: "BULL DOG" REGISTERED.

PADLOCKS.

No. 500.

BULL DOG*.

Wrought Steel, IVORY BLACK FINISH CASE; Self-locking Malleable Nickel Plated Spring Shackle; 1 Galvanized Steel Lever; 2 Nickeled Flat Steel Keys to each Lock. Per Dozen

No. 500—1½ INCH; 6 CHANGES; Spacing of Shackle, Closed, $^{11}/_{16}$x$^{11}/_{16}$ inch; Weight per dozen about 1½ lbs. $1.80

No. 502—1¾ INCH; 6 CHANGES Spacing of Shackle, Closed, ¾x¾ inch; Weight per dozen about 2½ lbs 2.40

One Dozen in a Cardboard Box.

No. 504—2 INCH; 12 CHANGES; Spacing of Shackle, Closed, ⅞x1 inch; Weight per dozen about 3 lbs..... 3.00

No. 506—2⅝ INCH; 24 CHANGES; Spacing of Shackle, Closed, 1⅛x1⅜ inch; Weight per dozen about 5 lbs..... 4.20

No. 512.

BULL DOG*.

WROUGHT BRASS CASE; Self-locking Malleable Black Enameled Spring Shackle; 1 Galvanized Steel Lever; 2 Nickeled Flat Steel Keys.

Per Dozen

No. 508—1½ INCH; 6 CHANGES; Spacing of Shackle, Closed, $^{11}/_{16}$x⅝ inch; Weight per dozen about 1¾ lbs..... $3.00

No. 510—1¾ INCH; 6 CHANGES Spacing of Shackle, Closed, ¾x¾ inch. Weight per dozen about 2½ lbs..... 4.20

One Dozen in a Cardboard Box

No. 512—2 INCH; 12 CHANGES; Spacing of Shackle, Closed, ⅞x$^{11}/_{16}$ inch; Weight per dozen about 3 lbs..... 4.80

No. 514—2⅝ INCH; 24 CHANGES; Spacing of Shackle, Closed, $^{11}/_{16}$x1⅜ inch; Weight per dozen about 5 lbs..... 6.00

One-half Dozen in a Cardboard Box.

BULL DOG*. Per Dozen

No. 521—2 INCH; WROUGHT STEEL CASE, Ivory Black Finish; Self-locking Malleable Nickel Plated Spring Shackle; Spacing of Shackle, Closed, ⅞x1 inch; 1 Galvanized Steel Lever; 2 Steel Nickel Plated Drilled Keys to each Lock; 12 CHANGES; Weight per dozen about 3 lbs..... $3.25

No. 521O—2 INCH; Same as No. 521 except has Brass Case and Black Enameled Shackle. 5.00

One-half Dozen in a Cardboard Box.

BULL DOG*. Per dozen

No. 496/C—1¼ inch WROUGHT STEEL CASE, Black Enameled, Malleable Iron Nickel Plated Self-locking Spring Shackle; Spacing of Shackle, Closed, ⅝x¾ inch; 12 inch Nickel Plated Steel Chain; 1 Galvanized Lever; 2 Flat Steel Nickel Plated Keys to each Lock; 6 CHANGES $4.50

BULL DOG*. Per dozen

No. 498/C—1¼ inch WROUGHT BRASS CASE, Satin Dip Finish; Malleable Iron Black Enameled Self-locking Spring Shackle; Spacing of Shackle, Closed, ⅝x¾ inch; 12 inch Nickel Plated Steel Chain; 1 Galvanized Lever; 2 Flat Steel Nickel Plated Keys to each Lock; 6 CHANGES $5.50

Weight per dozen about 2 lbs.

One Dozen in a Cardboard Box.

PADLOCKS.

Per Dozen

No. 4010½—2 INCH WROUGHT STEEL (IVORY) BLACK FINISH CASE, BRASS RIVETS; Malleable Iron Self-locking Spring Shackle; Spacing of Shackle, Closed, $^{13}/_{16}$x$^{15}/_{16}$ inch; 6 BRASS LEVERS; 2 Double Bitted Malleable Keys to each Lock; 12 CHANGES; Weight per dozen about 5 lbs.... $4.00

No. 4010½L—Same as No. 4010½, except Keyed Alike 4.00

No. 4010½C—Same as No. 4010½, except BRIGHT FINISH CASE, WITH 10 INCH JAPANNED STEEL CHAIN; Weight per dozen about 6 lbs..... 4.50

Per Dozen

No. 01406—2 INCH WROUGHT STEEL, BRASS PLATED CASE; Malleable Iron Self-locking Spring Shackle, Brass Plated; Spacing of Shackle, Closed, $^{13}/_{16}$x$^{15}/_{16}$ inch; 6 Brass Plated Steel Levers, Brass Rivets; 2 Flat Steel Double Bitted Keys; 12 CHANGES. Weight per dozen about 4½ lbs..... $4.00

One-half Dozen in a Cardboard Box.

X-RAY*. Per Dozen

No. 60—2 INCH WROUGHT STEEL CASE, OXIDIZED COPPER FINISH, with Raised Parts Relieved; Malleable Iron Self-locking Spring Shackle, Copper Plated; Spacing of Shackle, Closed, $^{11}/_{16}$x$^{13}/_{16}$ inches; Warded; 2 Rolled Steel Nickel Plated Barrel Keys to each Lock; 6 CHANGES; Weight per dozen about 3¾ lbs. $4.00

One Dozen in a Cardboard Box.

Per Dozen

No. 450J—2 INCH WROUGHT STEEL CASE, IVORY BLACK FINISH; Steel Self-locking Spring Shackle, Nickel Plated; Spacing of Shackle, Closed, $^{11}/_{16}$x1 inch; 2 Brass Plated Steel Levers; 2 Flat Steel Keys to each Lock; 12 CHANGES; Weight per dozen about 3 lbs. $4.10

One-half Dozen in a Cardboard Box.

TIGER.

Per Dozen

No. 76—1⅞ INCH WROUGHT STEEL CASE, BLACK ENAMELED; Self-locking Nickel Plated Steel Interlocking Spring Shackle; Spacing of Shackle, Closed, $^{13}/_{16}$x$^{13}/_{16}$ inch; 4 Brass Levers; 2 Extra Heavy Nickel Plated Flat Steel Keys to each Lock; 12 CHANGES; Weight per dozen about 3½ lbs $4.00

One Dozen in a Cardboard Box.

Rural Mail Box Locks. Per Dozen

No. 9902BS—1½ INCH CAST BRASS CASE, with Raised Surfaces, Polished; Self-locking Spring Shackle, Brass Polished; Spacing of Shackle, Closed, $^{11}/_{16}$x¾ inch; Galvanized Springs and Levers; 2 Corrugated Steel Keys to each Lock; 12 CHANGES; One Master Key with each Dozen Locks; Weight per dozen about 3 lbs. $3.75

No. 9902BSC—Same as No. 9902BS, except WITH 7 INCH BRASS CHAIN; Weight per dozen about 3½ lbs. 4.25

One-half Dozen in a Cardboard Box

‡PADLOCKS.

Per Dozen

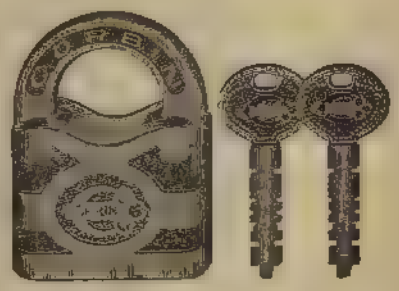
No. 039—2½ inch Gun Metal Finish, Brass Case and Spring Shackle; Spacing of Shackle Closed ⅞x1 inch; Spring Drop; 9 inch Polished Steel Chain; Without Keys; Weight per dozen about 10 lbs. $10.80

No. 039½K—With 24 Keys to the Dozen 12.60

Extra Keys for No. 039 ..... 1.80

One-half Dozen in a Cardboard Box.

NOTE—No. 039 can be Furnished to Operate Under any Standard Switch Key used by any Railroad Company or Made by any Manufacturer and Name of Railroad Company Cast on Back of Lock Without Extra Cost.



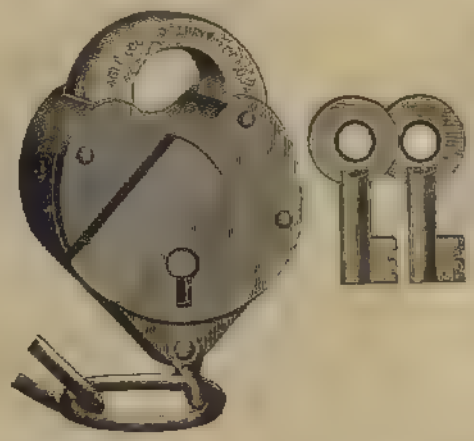
Per Dozen

No. 2974—2 inch Cast Bronze Case and Self Locking Spring Shackle, Finely Finished; Spacing of Shackle Closed ⅞x1¼ inches; 4 Secure Levers; 2 Coined German Silver Keys; 144 Changes; Weight per dozen about 5 lbs. $28.00

No. 2974C—Same Description as No. 2974 except with 9 inch Iron Chain; Weight per Dozen about 6½ lbs. 32.00

One-half Dozen in a Cardboard Box.

NOTE—Nos. 2974 and 2974C can be Furnished with the Initials of any Railroad Company Stamped on Shackle Without Extra Cost.



Per Dozen

No. 04147—2½ inch Cast Bronze Unpolished Riveted Case and Self-locking Spring Shackle; Spacing of Shackle closed ⅞x15/16 inch; 2 Secure Levers; Cast Bronze Spring Drop; 9 inch Galvanized Steel Chain; 2 Cast Bronze Drilled Keys; 120 Changes; Weight per dozen about 11 3/16 lbs. $16.00

One-half Dozen in a Cardboard Box.

Per Dozen

No. 4130—3 inch Wrought Steel Riveted Case, Tinned; Malleable Iron Tinned Self Locking Spring Shackle; Spacing of Shackle Closed 1 3/16x1⅜ inches; Rack Tumblers and Ward; Malleable Iron Tinned Spring Drop; 15 inch Wrought Iron Japanned Chain; Cast Bronze Drilled Key; Weight per dozen about 13 lbs. $15.00

One-half Dozen in a Cardboard Box.

‡Goods marked thus (‡) are not carried in stock and can only be furnished by shipment direct from factory.

WROUGHT PADLOCKS.

Per Dozen

No. 0000—2 inch WROUGHT IRON CASE, JAPANNED; Self-Locking Malleable Spring Shackle; Spacing of Shackle, Closed, $\frac{5}{8}$x$\frac{3}{16}$ inch; 1 Malleable Iron Key to each Lock, 4 CHANGES; Weight per dozen about 2 lbs..... $2.70

Per Dozen

No. 000—2¼ inch WROUGHT IRON CASE, JAPANNED. Malleable Shackle, without Spring; Spacing of Shackle, Closed, $\frac{5}{8}$x1⅛ inches; 1 Malleable Iron Key to each Lock; Weight per dozen about 3 lbs..... $2 70

Per Dozen

No. 00—2¼ inch WROUGHT IRON CASE, JAPANNED; Malleable Shackle, without Spring; Spacing of Shackle, Closed, $\frac{13}{16}$x1⅛ inches; 1 Wheel Ward; Brass Key Hole Drop; 1 Malleable Iron Drilled Key to each Lock; Weight per dozen about 3 lbs. $3.25

Per Dozen

No. 1—2½ inch WROUGHT IRON CASE, JAPANNED; Wrought Iron Shackle, without Spring; Spacing of Shackle, Closed, ⅞x1¼ inches; 1 Wheel Ward; 1 Malleable Iron Drilled Key to each Lock; Brass Key Hole Drop; Weight per dozen about 4½ lbs. $4.00

No. 1-2K—2½ inch, Same as No. 1, EXCEPT WITH 2 KEYS; Weight per dozen about 5 lbs..... ... 4.50

Per Dozen

No. 3042-2K—2½ inch WROUGHT IRON CASE, JAPANNED; Heavy Wrought Iron Self locking Spring Shackle; Spacing of Shackle, Closed, $\frac{15}{16}$x$\frac{13}{16}$ inches; Revolving Key Pin; Double Chamber; 1 Wheel and Bridge Ward; Raised Brass Bushing Front and Back; 2 Flat Steel Double Bitted Keys to each Lock; 6 CHANGES; Weight per dozen about 6 lbs. $8 25

Per Dozen

No. 3027-2K—2¼ inch WROUGHT IRON CASE, JAPANNED; Wrought Iron Shackle, without Spring; Spacing of Shackle, Closed, $\frac{11}{16}$x$\frac{13}{16}$ inches; Revolving Key Pin, Double Chamber; Bridge Ward; Raised Brass Bushings Front and Back; 2 Flat Steel Double Bitted Keys to each Lock; 6 CHANGES; Weight per dozen about 5 lbs..... $7.95

One-half Dozen in a Cardboard Box.

Per Dozen

No. 3026-2K—2½ inch WROUGHT IRON CASE, JAPANNED; Heavy Wrought Iron Shackle, without Spring; Spacing of Shackle, Closed, $\frac{13}{16}$x1⅜ inches; Revolving Key Pin, Double Chamber; 1 Wheel and Bridge Ward; Raised Brass Bushings, Front and Back; 2 Flat Steel Double Bitted Keys to Each Lock; 6 CHANGES; Weight per dozen about 7 lbs..... $9.20

One Dozen in a Cardboard Box

E.C. SIMMONS KEEN KUTTER STAMPED U.S.A.

E.C. SIMMONS KEEN KUTTER STAMPED U.S.A.

PADLOCKS
DRAWER LOCKS
WARDROBE LOCKS
LOCKER LOCKS
MACHINE LOCKS
DESK LOCKS
CUPBOARD LOCKS
CABINET LOCKS
BOX LOCKS
CHEST LOCKS
TRUNK LOCKS

Pages 1103 to 1142

TRADE MARKS
E. C. SIMMONS' *KEEN KUTTER*;
CHIPAWAY

BENCH PLANES.

*KEEN KUTTER**

SELECTED AND SEASONED BEECHWOOD, FINELY VARNISHED, Ebonized Hardwood Knobs; Double Cutters, Forged from Highest Grade Crucible Steel, Oil Tempered, Full Polished, Sharpened and Whetted on an Oil Stone by Hand, READY FOR USE

Specially Prepared to Prevent Cracking.

Improved Shape Finely Varnished.

No. KS—SMOOTH; Length 8 inches; Size of Cutters, Assorted, 2, 2⅛ and 2¼ inches; Weight each about 2 lbs..... Each $1.25

No. KHS—HANDLED, SMOOTH; Length 9½ inches; Size of Cutters, Assorted, 2, 2⅛ and 2¼ inches; Weight each about 2¾ lbs..... Each $2.00

No. KJ—JACK Length 16 inches; Size of Cutters, Assorted, 2⅛ and 2¼ inches; Weight each about 4 lbs..... Each $1.50

Fitted with Our *KEEN KUTTER* Plane Irons.

No. KF—FORE Length 22 inches, Size of Cutters, Assorted 2⅜, and 2½ inches Weight each about 5½ lbs..... Each $2.25

No. KP/26—JOINTER, LENGTH 26 INCHES, Size of Cutters, Assorted, 2½ and 2⅝ inches ..... Each $2.00

No. KP/28—JOINTER; LENGTH 28 INCHES, Size of Cutters, Assorted, 2½ and 2⅝ inches 2.20

No. KP/30—JOINTER; LENGTH 30 INCHES; Size of Cutters, Assorted, 2½ and 2⅝ inches 2.30

Weight Each About 7 lbs.

One in a Cardboard Box.

CHIPAWAY*

SELECTED AND SEASONED BEECHWOOD, PLAIN FINISH; Polished Starts; Double Cutters Forged from Special Crucible Steel, Oil Tempered, Full Polished and Sharpened.

No. CS—SMOOTH, Length 8 inches; Size of Cutters, Assorted, 2, 2⅛ and 2¼ inches; Weight each about 1½ lbs..... Each $1.00

No. CHS—HANDLED, SMOOTH Length 9½ inches; Size of Cutters, Assorted, 2, 2⅛, 2¼ inches; Weight each about 2 lbs..... Each $1.85

No. CJ—JACK, Length 15 inches; Size of Cutters, Assorted, 2⅛ and 2¼ inches; Weight each about 4½ lbs..... Each $1.25

Fitted with Our CHIPAWAY Plane Irons.

No. CF—FORE; Length 22 inches; Size of Cutters, Assorted, 2⅜ and 2½ inches; Weight each about 6 lbs..... Each $1.75

No. CP/26—JOINTER; LENGTH 26 INCHES; Size of Cutters, Assorted, 2½ and 2⅝ inches ..... Each $1.75

No. CP/28—JOINTER; LENGTH 28 INCHES; Size of Cutters, Assorted, 2½ and 2⅝ inches 1.95

No. CP/30—JOINTER, LENGTH 30 INCHES; Size of Cutters, Assorted, 2½ and 2⅝ inches 2.05

Weight each about 8 lbs.

Wrapped in Heavy Paper; One in a Package.

BENCH PLANES.

SCIOTO

BEECHWOOD, PLAIN FINISH; Cutters Forged from Tool Steel, Tempered and Polished.

	Each
No. SS—SMOOTH, SINGLE CUTTERS; Length 8 inches; Size of Cutters, Assorted, 2, 2⅛, 2¼ inches; Weight each about 2¼ lbs	$0 70
No. DS—SMOOTH DOUBLE CUTTERS, Length 8 inches; Size of Cutters, Assorted, 2, 2⅛, 2¼ inches; Weight each about 2½ lbs	.90
No. SJ—JACK SINGLE CUTTERS, Length 16 inches, Size of Cutters, Assorted 2⅛ and 2¼ inches Weight each about 4½ lbs	$0 85
No. DJ—JACK, DOUBLE CUTTERS; Length 16 inches, Size of Cutters, Assorted, 2¼ and 2½ inches, Weight each about 4½ lbs	1 00

	Each
No. SF—FORE, SINGLE CUTTERS; Length 22 inches; Size of Cutters, Assorted, 2⅜ and 2½ inches; Weight each about 6½ lbs	$1.40
No. DF—FORE, DOUBLE CUTTERS; Length 22 inches; Size of Cutters, Assorted, 2⅜ and 2½ inches; Weight each about 7 lbs	1.70
No. J26—JOINTER, DOUBLE CUTTERS; LENGTH 26 INCHES; Size of Cutters, Assorted, 2½ and 2⅝ inches	$1.80
No. J28—JOINTER, DOUBLE CUTTERS; LENGTH 28 INCHES; Size of Cutters, Assorted, 2½ and 2⅝ inches	1.90
No. J30—JOINTER, DOUBLE CUTTERS; LENGTH 30 INCHES; Size of Cutters, Assorted, 2½ and 2⅝ inches	2.15

Packed Loose Weight each about 9 lbs.

RAZEE OR RECESS HANDLE.

SECOND QUALITY.

BEECHWOOD, PLAIN FINISH; Double Cutters, Forged from Tool Steel, Tempered and Polished.

	Each
No. RJ—JACK; Length 16 inches; Size of Cutters, Assorted, 2½ and 2¼ inches; Weight each about 4 lbs	$1.20
No. RF—FORE; Length 22 inches; Size of Cutters, Assorted, 2⅜ and 2½ inches; Weight each about 6 lbs	$1 90

Packed Loose.

FANCY WOOD PLANES.

BEECHWOOD, PLAIN FINISH Cutters Forged from Tool Steel, Tempered and Polished; Average Length 9½ inches

Hollow Plane.

Round Plane.

In ordering half pairs of Hollows and Rounds, be careful to give number of Plane, and whether Hollow or Round. For instance, if a Plane as per above cuts is wanted, say "one No. 72, ¾-inch HOLLOW, or one No. 72, ¾-inch ROUND," and thus avoid confusion.

No. 72F—HOLLOWS AND ROUNDS.

Size, inches	⅜	½	⅝	¾	⅞	1	1⅛	1¼
Weight per pair about, lbs	1¼	1½	1¾	2	2¼	2¼	2½	2½
Per pair	$1.00	1.00	1.00	1.00	1.00	1.15	1.15	1.15

No. 72FS—SETS OF 9 PAIRS, ASSORTED, from ¼ to 1¼ inches; Weight per set about 16 lbs. Per Set $9.45

Packed Loose.
Each Plane Cuts Only One Size.

FANCY WOOD PLANES.

BEECHWOOD, PLAIN FINISH: Cutters Forged from Tool Steel, Tempered and Polished.

BEAD.

No. 37F—Single Boxed.

Size, in	1/8	3/16	1/4	5/16
Each	$0.50	.50	.50	.50
Size, inches	⅜	½	⅝	
Each	$0.50	.50	.55	

BEAD.

No. 41F—Double Boxed Center.

Size, in.	3/16	1/4	5/16
Each	$0.60	.60	.60
Size, inches	¾	⅞	
Each	$0.60	.60	

REVERSE OGEE.

No. 62F.

Size, inches	¾	⅞	1
Each	$0.75	.75	.75

ROMAN OGEE, Reverse, with Fence.

No. 62¼

Size, inches	⅞	1
Each	$0.90	.90

Weight Each about 1 lb.

Each Plane Cuts Only One Size.

No. 116—SKEW RABBET.

Size, inches	¾	1	1¼
Wgt. each about, lbs.	1	1¼	1¼
Each	$0.60	.60	.65
Size, inches	1½	1¾	2
Wgt. each about lbs	1½	2	2
Each	$0.70	.80	.90

SKEW RABBET, With Handle and Two Side Cutters.

No. 119—WITH HANDLE ON TOP.

Size, inches	1½	2
Each	$1.70	1.70

No. 119½—WITH HANDLE ON SIDE.

Size, inches	1½	1¾	2
Each	$1.90	1.90	1.90

Weight each about 3 lbs.

No. 48F—DADO, With Brass Screw Top.

Size, inches	¾	½	⅝
Each	$1.50	1.50	1.50
Size, inches	¾	⅞	
Each	$1.50	1.50	

Weight each about 1¼ lbs.

No. 75—MATCH

Size, in	½	⅝	¾
Per pair	$1.50	1.50	1.70
Size, inches	⅞	1	
Per pair	$1.70	1.70	

Weight each about 2½ lbs

No. 58—FILLETSTER, With Cutter and Brass Side Stop.

Size, inches	1¼
Each	$1.40

Weight each about 3 lbs.

No. 91—NOSING; 2 Irons.

Size, in.	¾	⅞	1
Each	$1.10	1.10	1.10
Size, in.	1⅛	1¼	1½
Each	$1.10	1.10	1.20

Weight each about 1½ lbs.

No. 30F—TOOTH.

Size, inches	2⅛
Each	$1.00

Weight each about 1½ lbs.

Packed Loose.

TRADE MARK: E. C. SIMMONS' KEEN KUTTER, REGISTERED

ADJUSTABLE PLANES.

KEEN KUTTER*

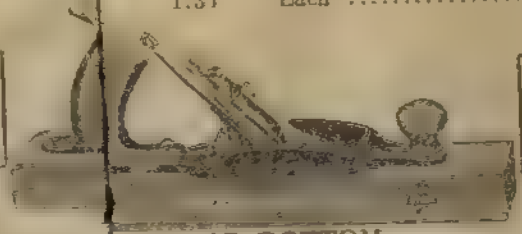
SELECTED AND SEASONED BEECHWOOD BOTTOMS; Knobs and Handles, Finely Varnished; Cast Iron Frames Enameled Black, Full Polished Caps; CUTTERS ARE EXTRA HEAVY, which prevents "Chattering" when used on very hard wood or knots, Made of Highest Grade Crucible Steel, Oil Tempered, Full Polished. SHARPENED AND WHETTED ON AN OIL STONE BY HAND, READY FOR USE. Finest Screw and Lever Adjustments.

WOOD BOTTOM.

Nos.	KK23	KK24
Style	SMOOTH	SMOOTH
Length, inches	9	8
Size of Cutter inches	1¾	2
Weight each about, lbs.	3¼	3¼
Each	$1.35	1.35

Nos.	KK35	KK36
Style	HLD. SMOOTH	HLD. SMOOTH
Length, inches	9	10
Size of Cutter, inches	2	2⅜
Weight each about, lbs.	3½	4½
Each	$1.70	1.85

The Wood Parts are Selected, Well Seasoned and Varnished; will not Crack, Check or Warp.



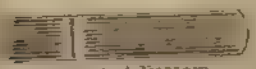
The Planes which are used on Hard Wood are much more effective if they have a Strong Heavy Thick Cutter, as in the case of our KEEN KUTTER Iron Planes.

WOOD BOTTOM.

Nos.	KK26	KK27	KK28	KK29	KK30	KK31	KK32	[illegible]
Style	JACK	JACK	FORE	FORE	JOINTER	JOINTER	JOINTER	JOINTER
Length, inches	15	15	18	20	22	24	26	28
Size of Cutter, inches	2	2⅛	2⅜	2⅜	2⅜	2⅜	2⅝	2⅝
Weight each about, lbs.	4½	5	6¼	6½	7	7½	8	8¾
Each	$1.50	1.70	1.85	1.85	2.00	2.00	2.20	2.20

FINE[illegible] IRON.

Smooth [illegible] ENAMELED CAST IRON FRAMES Bottoms Perfectly True and CUTTERS [illegible]ely Varnished Rosewood Handles and Knobs Full Polished Caps; hard wood [illegible]RE EXTRA HEAVY which prevents "Chattering" when used on very Polished, S[illegible] knots; Made of Highest Grade Crucible Steel Oil Tempered, Full AN OIL S[illegible] ARPENED AND WHETTED ON USE; Fines[illegible]ONE BY HAND, READY FOR [illegible] Screw and Lever Adjustments



Corrugated Bottom.

IR[illegible]ON, SMOOTH BOTTOM.

Nos.	KK3	KK4	KK4½
Style	SMOOTH	SMOOTH	SMOOTH
Length, inches	8	9	10
Size of Cutter, inches	1¾	2	2⅜
Weight each about, lbs	3½	3¾	4½
Each	$2.00	2.20	2.50

Nos	KK5	KK5½	KK6	KK7	KK8
Style	JACK	JACK	FORE	JOINTER	JOINTER
Length, in.	14	15	18	22	24
Size Cutter, in.	2	2¼	2⅜	2⅜	2⅝
Wgt. abt., lbs.	4¾	5	7	7½	9¼
Each	$2.50	2.85	3.20	3.65	4.35

IRON CORRUGATED BOTTOM

Nos	KK3C	KK4C	KK4½C
Style	SMOOTH	SMOOTH	SMOOTH
Length, inches	8	9	10
Size of Cutter inches	1¾	2	2⅜
Weight each about, lbs.	3½	3¾	4½
Each	$2.00	2.20	2.50

Nos	KK5C	KK5½C	KK6C	KK7C	KK8C
Style	JACK	JACK	FORE	JOINTER	JOINTER
Length, in.	14	15	18	22	24
Size Cutter, in.	2	2¼	2⅜	2⅜	2⅝
Wgt. abt., lbs.	4	5	7	7½	9¼
Each	$2.50	2.85	3.20	3.65	4.35

One in a Cardboard Box.

TRADE MARK:
E. C. SIMMONS' *KEEN KUTTER*.
REGISTERED.

ADJUSTABLE PLANES.

*KEEN KUTTER**; IRON.

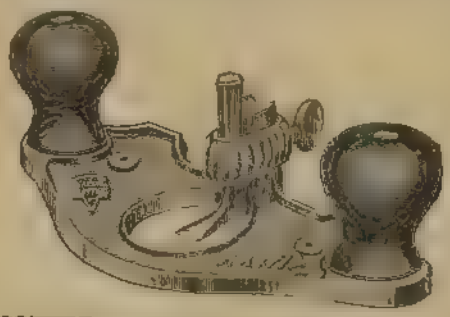
Cast Iron Frames; Bottoms Perfectly True and Smooth. Cutters Made of Highest Grade Crucible Steel, Oil Tempered; Full Polished, SHARPENED AND WHETTED ON AN OIL STONE BY HAND READY FOR USE

ROUTER.

No. KK71—Nickel Plated Frame; Length 7½ inches; Two Cutters, Size ¼ and ½ inch; Weight each about 2½ lbs. ..... Each $1.85

The Cutters can be Clamped to the Back of Upright Post and Outside of Stock; in this position THEY WILL REACH INTO CORNERS, route out mortises or smooth surfaces hard to reach with other tools.

The Small Attachment in cut is furnished with each Plane and can be substituted for the Collar that holds the Cutter when the work requires a Plane with a Closed Throat.



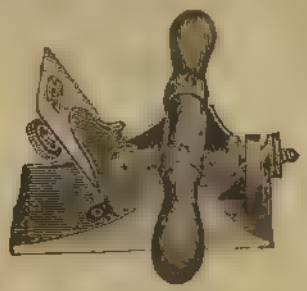
ROUTER, WITH CLOSED THROAT.

No. KK171½—Nickel Plated Frame; Length 7⅝ inches; Two Cutters, Size ¼ and ½ inch; Weight each about 2 lbs ..... Each $1.50

IMPROVED SCRUB

No. KK240—NOT ADJUSTABLE; Length 9½ inches; Size of Cutter 1¼ inches, Weight each about 3 lbs. ..... Each $1.00

This Plane is Particularly Adapted for Roughing down work before using a Jack or other Plane, having a Single Iron with Cutting Edge Rounded



VENEER SCRAPER.

No. KK212—With Screw Adjustment, Adjustable to Any Angle; Finely Varnished Handles. Length 6¾ inches; Size of Cutter 3 inches; Weight each about 1 lb ..... Each $2.25

Takes same Cutters as Scraper Plane No. KK312, shown on this Page.

SCRAPER

No. KK312—With Screw Adjustment, Knob, and Handle Finely Varnished; Length 9 inches. Size of Cutter 3 inches. Weight each about 4½ lbs. ..... Each $2.00

Extra Cutters for No. KK312 Scraper; Size 3 inches; Weight each about ¼ lb. ..... .20

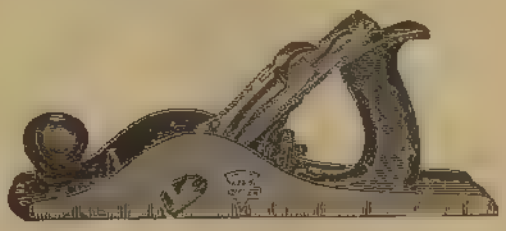
One in a Cardboard Box.

TRADE MARK:
E. C. SIMMONS' *KEEN KUTTER*
REGISTERED.

ADJUSTABLE PLANES.

***KEEN KUTTER**; IRON.**

FINELY ENAMELED CAST IRON FRAMES; Bottoms Perfectly True and Smooth; Cutters made of Highest Grade Crucible Steel, Oil Tempered, Full Polished, SHARPENED AND WHETTED ON AN OIL STONE BY HAND, READY FOR USE.



CARRIAGE MAKERS' RABBET

Finely Varnished Rosewood Handles and Knobs; Full Polished Caps; CUTTERS ARE EXTRA HEAVY, which prevents "CHATTERING" WHEN USED ON VERY HARD WOOD OR KNOTS.

Each

No. KK10½—With Screw and Lever Adjustments Length 9 inches; Size of Cutter 1⅝ inches; Weight each about 9 lbs. $2.50

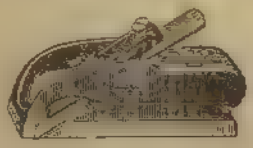
No. KK10—With Screw and Lever Adjustments; Length 13 inches; Size of Cutter 2⅛ inches; Weight each about 4¼ lbs. 3.00

RABBET AND FILLETSTER.

Each

No. KK78—Length 8½ inches; Size of Cutter 1½ inches; Weight each about 2⅞ lbs. $1.50

By removing the Arm to which the Fence is secured, a Handled Rabbet Plane is had, with Two Seats for the Cutter, to be used as a Bull Nose Rabbet if required. The construction of the Stock is such that the plane will lie perfectly flat on either side, and CAN BE USED WITH RIGHT OR LEFT HAND equally well, while Planing into corners or against perpendicular surfaces.



BULL NOSE RABBET.

Each

No. KK75—NOT ADJUSTABLE; Length 4 inches; Size of Cutter 1 inch; Weight each about ¾ lb. $0.55

RABBET, WITH SPUR

Each

No. KK190—NOT ADJUSTABLE; Length 8 inches; Width of Cutter 1½ inches Weight each about 2⅝ lbs $1.15

No. KK191—NOT ADJUSTABLE; Length 8 inches; Width of Cutter 1¼ inches; Weight each about 2¼ lbs. 1.15

No. KK192—NOT ADJUSTABLE; Length 8 inches; Width of Cutter 1 inch; Weight each about 2 lbs. 1.15

Will lie perfectly flat on either side, and CAN BE USED WITH RIGHT OR LEFT HAND equally well, while planing into corners or against perpendicular surfaces

STEEL CIRCULAR.

Each

No. KK115—With Screw and Lever Adjustments; Full Polished Caps; CUTTERS ARE EXTRA HEAVY, which prevents "CHATTERING" WHEN USED ON VERY HARD WOOD OR KNOTS; Length 10 inches; Size of Cutter 1¾ inches; Weight each about 3¾ lbs $2.75

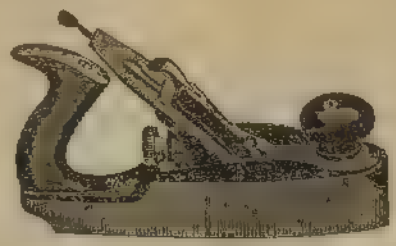
One in a Cardboard Box.

ADJUSTABLE PLANES.

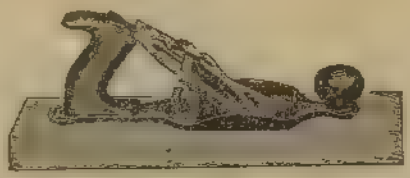
"B" WOOD BOTTOM.

VARNISHED BEECHWOOD BOTTOMS, Knobs and Handles; Japanned Cast Iron Frames; Polished Caps; Tempered and Polished Tool Steel Cutters; Screw and Lever Adjustments.

Nos.	23B	24B
Style	SMOOTH	SMOOTH
Length, inches	9	8
Size of Cutter, inches	1¾	2
Weight each about, lbs	3¼	3
Each	$2.00	2 00



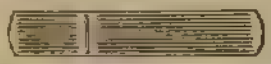
Nos.	35B	36B
Style	HDL. SMOOTH	HDL SMOOTH
Length inches	9	10
Size of Cutter, inches	2	2⅜
Weight each about, lbs.	3½	4¼
Each	$2 50	2.75



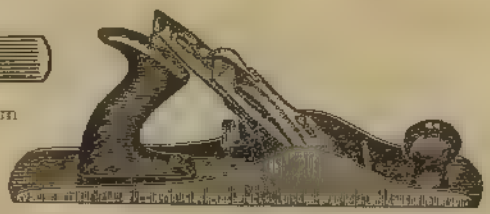
Nos	26B	27B	28B	29B	30B	31B	32B	33B	34B
Style	JACK	JACK	FORE	FORE	JOINTER	JOINTER	JOINTER	JOINTER	JOINTER
Length, inches	15	15	18	20	22	24	26	28	30
Size of Cutter, inches	2	2⅛	2⅜	2⅜	2⅜	2⅝	2⅝	2⅝	2⅝
Weight each about, lbs	4	4½	5½	6	6½	7	7½	8	8
Each	$2.25	2.50	2.75	2.75	3.00	3.00	3.25	3.25	3.50

"B" IRON.

JAPANNED CAST IRON FRAMES; Varnished Rosewood Handles and Knobs; Polished Caps; Tempered and Polished Tool Steel Cutters; Screw and Lever Adjustments.



Corrugated Bottom



IRON, SMOOTH BOTTOM

Nos	3B	4B
Style	SMOOTH	SMOOTH
Length, inches	8	9
Size of Cutter, inches	1¾	2
Weight each about, lbs	3	3½
Each	$3.00	3.25

Nos.	5B	6B	7B	8B
Style	JACK	FORE	JOINTER	JOINTER
Length, inches	14	18	22	24
Size of Cutter, inches	2	2⅜	2⅜	2⅝
Wght each about, lbs	4¾	7	8	9½
Each	$3.75	4.75	5.50	6.50

IRON, CORRUGATED BOTTOM.

Nos.	3BC	4BC
Style	SMOOTH	SMOOTH
Length, inches	8	9
Size of Cutter, inches	1¾	2
Weight each about, lbs	3	3½
Each	$3.00	3.25

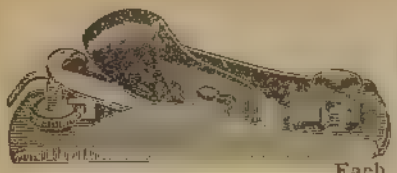
Nos.	5BC	6BC	7BC	8BC
Style	JACK	FORE	JOINTER	JOINTER
Length, inches	14	18	22	24
Size of Cutter, inches.	2	2⅜	2⅜	2⅝
Wght each about, lbs	4¾	7	8	9½
Each	$3.75	4.75	5.50	6.50

One in a Cardboard Box

BLOCK PLANES.

"B" IRON.

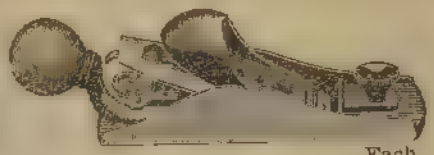
JAPANNED CAST IRON FRAMES AND CAPS, Tempered and Polished Tool Steel Cutters



Each

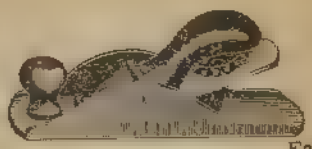
No. 9½B—With Screw, Lever and Throat Adjustments; LENGTH 6 INCHES; Size of Cutter 1¾ inches, Weight each about 1½ lbs..... $1.6[illegible]

No. 15B—With Screw, Lever and Throat Adjustments; LENGTH 7 INCHES; Size of Cutter 1¾ inches; Weight each about 1½ lbs.. .. .. .. 1.70



Each

No. 9¾B—With Screw, Lever and Throat Adjustments; Rosewood Handle; Length 6 inches; Size of Cutter 1¾ inches; Weight each about 1¾ lbs. $1.85



Each

No. 102B—NOT ADJUSTABLE; LENGTH 5½ INCHES; Size of Cutter 1¼ inches; Weight each about 1 lb..... $0.[illegible]

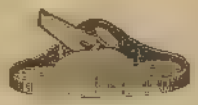
No. 110B—NOT ADJUSTABLE; LENGTH 7½ INCHES, Size of Cutter 1¾ inches; Weight each about 1½ lbs..... .70

Each

No. 120B—With Lever Adjustment; Length 7½ inches; Size of Cutter 1¾ inches; Weight each about 1½ lbs..... $[illegible].95

Each

No. 103B—With Lever Adjustment; Length 5½ inches; Size of Cutter 1¼ inches, Weight each about 1 lb..... $0.70



Each

No. 101B—TOY SIZE; NOT ADJUSTABLE; Length 3½ inches; Size of Cutter 1 inch; Weight each about ½ lb..... $0.[illegible]

One in a Cardboard Box.

ADJUSTABLE PLANES.

STANLEY'S BED ROCK.

JAPANNED CAST IRON FRAMES; Varnished Rosewood Handles and Knobs; Polished Caps; Tempered and Polished Tool Steel Cutters, Screw and Lever Adjustments. Designed so that the Entire Bottoms or Face or Frog Rests Solidly on Seat in Frame, and can be Adjusted for Wide or Narrow Throat Opening.

Design of Frame.

IRON, SMOOTH BOTTOM.

Nos.	603	604	604½
Style	SMOOTH	SMOOTH	SMOOTH
Length, inches	8	9	10
Size of Cutter, inches	1¾	2	2⅜
Weight each about, lbs.	3¼	3¾	4½
Each	$2.55	2.75	3.20

Nos.	605	605½	606	607	608
Style	JACK	JACK	FORE	JOINTER	JOINTER
Length, in	14	15	18	22	24
Size Cutter, in.	2	2¼	2⅝	2⅝	2⅝
Weight each about, lbs.	4¾	6	6½	7½	9¼
Each.	$3.20	3.60	3.85	4.60	5.50

IRON, CORRUGATED BOTTOM.

Nos.	603C	604C	604½C
Style	SMOOTH	SMOOTH	SMOOTH
Length, inches	8	9	10
Size of Cutter, inches	1¾	2	2⅜
Weight each about, lbs	3¼	3¾	4½
Each	$2.[illegible]	[illegible]	[illegible]

Nos.	605C	605½C	606C	607C	608C
Style	JACK	JACK	FORE	JOINTER	JOINTER
Length, in.	14	15	18	22	24
Size Cutter, in.	2	2¼	2⅜	2⅜	2⅝
Weight each about, lbs.	4¼	6	6½	7½	9¼
Each.	$3.20	3.60	3.85	4.60	5.50

One in a Cardboard Box.

ADJUSTABLE PLANES.

BAILEY'S.

WOOD BOTTOM.

VARNISHED BEECHWOOD BOTTOMS, Knobs and Handles; Japanned Cast Iron Frames and Caps; Tempered and Polished Tool Steel Cutters; Screw and Lever Adjustments.

Nos.	23	24
Style	SMOOTH	SMOOTH
Length, inches	9	8
Size of Cutter, inches	1¾	2
Weight each about, lbs	2¼	3
Each	$1.50	1.50

Nos	35	36
Style	HDLD. SMOOTH	HDLD. SMOOTH
Length, inches	9	10
Size of Cutter, inches	2	2⅜
Wgt each about lbs	3½	4
Each	$1.90	2.05

Nos	26	27	27½	28	29	30	31	32	33	34
Style	JACK	JACK	JACK	FORE	FORE	JOINTER	JOINTER	JOINTER	JOINTER	JOINTER
Length, inches	15	15	15	18	20	22	24	26	28	30
Size of Cutter, inches	2	2⅛	2¼	2⅜	2⅜	2⅜	2⅜	2⅝	2⅝	2⅝
Weight each about, lbs	4	4½	5	5½	6	6¼	6½	7	8	8½
Each	$1.65	1.90	1.90	2.05	2.05	2.20	2.20	2.40	2.40	2.50

BAILEY'S IRON.

JAPANNED CAST IRON FRAMES, Varnished Rosewood Handles and Knobs Polished Caps, Tempered and Polished Tool Steel Cutters; Screw and Lever Adjustments.

Corrugated Bottom.

IRON, SMOOTH BOTTOM.

Nos	1	3	4	4½
Style	SMOOTH	SMOOTH	SMOOTH	SMOOTH
Length, inches	5½	8	9	10
Size Cutter in.	1¼	1¾	2	2⅜
Weight each, about, lbs.	1¼	3	3½	5
Each	$1.65	2.20	2.40	2.75

Nos.	5	5½	6	7	8
Style	JACK	JACK	FORE	JOINTER	JOINTER
Length, in	14	15	18	22	24
Size Cutter, in	2	2¼	2⅜	2⅜	2⅝
Weight each about, lbs	4¾	6	7	7½	9¼
Each	$2.75	3.15	3.50	4.00	4.80

IRON, CORRUGATED BOTTOM.

Nos	3C	4C	4½C
Style	SMOOTH	SMOOTH	SMOOTH
Length inches	8	9	10
Size of Cutter, inches	1¾	2	2⅜
Weight each about, lbs.	3¼	4	5
Each	$2.20	2.40	2.75

Nos.	5C	5½C	6C	7C	8C
Style	JACK	JACK	FORE	JOINTER	JOINTER
Length, in	14	15	18	22	24
Size Cutter, in.	2	2¼	2⅜	2⅜	2⅝
Weight each about, lbs	5	6	7	8	9¼
Each	$2.75	3.15	3.50	4.00	4.80

One in a Cardboard Box

ADJUSTABLE PLANES.

STANLEY'S.

VARNISHED BEECHWOOD BOTTOMS, Knobs and Handles; Japanned Cast Iron Frames and Caps; Tempered and Polished Tool Steel Cutters; Screw and Lever Adjustments.

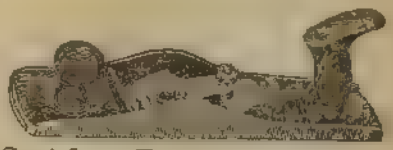
No. 122—SMOOTH; Length 8 inches; Size of Cutter 1¾ inches; Weight each about 2½ lbs.. $1.[illegible] Each

No. 135—HANDLED SMOOTH; Length 10 inches; Size of Cutter 2⅛ inches. Weight each about 3¼ lbs. ..... $1.50 Each

Nos	127	129	132
Style	JACK	FORE	JOINTER
Length, inches	15	20	26
Size of Cutter, inches	[illegible]	2⅜	2⅝
Weight each about, lbs.	3¼	5	6½
Each	$1.50	1.65	1.90

JAPANNED FRAMES AND CAPS. Varnished Rosewood Handles and Knobs; Tempered and Polished Tool Steel Cutters.

Wrought Steel Frames, Cast Iron Caps.



Cast Iron Frames and Caps.

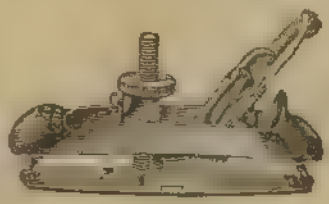
No. 104—SMOOTH; with Screw and Lever Adjustments: Length 9 inches; Size of Cutter 2⅛ inches; Weight each about 3 lbs . . . . $2.[illegible] Each

No. 105—JACK; with Screw and Lever Adjustments; Length 14 inches; Size of Cutter 2⅛ inches Weight each about 4 lbs. $2.60 Each

No. 62—LOW ANGLE JACK; with Throat and Screw Adjustments; Length 14 inches; Size of Cutter 2 inches; Weight each about 4 lbs. ..... $2.85 Each

This Plane is Especially Adapted for use in Cutting Across the Grain on Heavy Work where more power is required than can be obtained by the use of the [illegible] Block Plane. The Plane is fitted with Patent Adjustable Throat, which enables the user to work equally well on Hard or Soft Wood.

CAST IRON FRAMES, CAPS AND HANDLES, Tempered and Polished Tool Steel Cutters; Polished Spring Steel Bottoms; Screw and Lever Adjustments; Can be Adjusted to Work on Concave or Convex Surfaces.



No. 113—CIRCULAR; Japanned Frame and Cap; Length 10 inches; Size of Cutter 1¾ inches; Weight each about 4 lbs. ..... $3.00 Each

By means of the Graduated Scale on the Gears, the Face can be Accurately Set to Work in Arc of the Same Circle both Concave and Convex, by turning the Knob on the Front of the Plane.

No. 20—CIRCULAR; Nickel Plated Frame and Cap; Length 10 inches; Size of Cutter 1¾ inches; Weight each about 4 lbs. ..... $4.10 Each

One in a Cardboard Box.

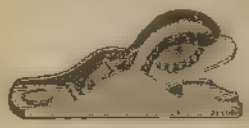
IRON BLOCK PLANES.

STANLEY'S.

JAPANNED CAST IRON FRAMES and Caps; Tempered and Polished Tool Steel Cutters.

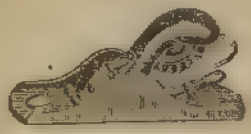
Each

No. 101—TOY SIZE, Not Adjustable; Length 3½ inches; Size of Cutter 1 inch; Weight each about ¾ lb ..... $0 2.



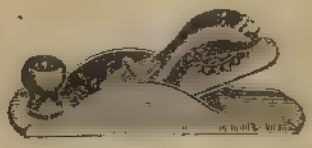
Each

No. 102—NOT ADJUSTABLE; Length 5½ inches; Size of Cutter 1¼ inches; Weight each about 1 lb..... $0 40



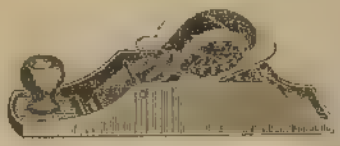
Each

No. 103—WITH LEVER ADJUSTMENT; Length 5½ inches; Size of Cutter 1¼ inches; Weight each about 1 lb .. $0 .



Each

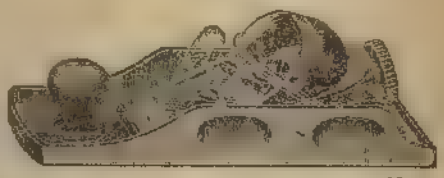
No. 110—NOT ADJUSTABLE; Length 7½ inches; Size of Cutter 1¾ inches; Weight each about 1½ lbs. $0 55



Each

No. 130—DOUBLE END; NOT ADJUSTABLE Length 8 inches; Size of Cutter 1¾ inches; Weight each about 1¾ lbs..... ..... $0.75

This Plane has Two Slots and Two Cutter Seats. It can be used as a Block Plane, or by reversing the position of the Cutter and the Clamping Wedge (see dotted lines in the engraving), it can be used to plane close up into corners, or places difficult to reach with any other plane



Each

No. 131—DOUBLE END, with Screw Adjustment; Length 8 inches; Size of Cutter 1¾ inches; Weight each about 1¾ lbs..... $1.50

This Plane has Two Slots and a Movable Cutter Seat. When it is desired to use it as a Bull Nose Plane the Cap and Cutter can be removed and the Adjustable Cutter Seat reversed as indicated in Cut.

Each

No. 220—WITH SCREW ADJUSTMENT; Length 7½ inches, Size of Cutter 1¾ inches; Weight each about 1½ lbs..... ..... $0 .

Each

No. 60—LOW ANGLE, with Screw Adjustment; LENGTH 6 INCHES; Size of Cutter 1½ inches, Weight each about 1¼ lbs... .. .... $1 2.

No. 65—LOW ANGLE, with Screw Adjustment; LENGTH 7 INCHES; Size of Cutter 1¾ inches; Weight each about 1½ lbs..... . .. 1 3.

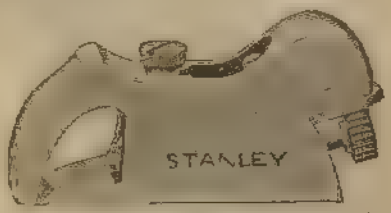
These Planes have the Cutters set at a very Low Angle, which is of great advantage when working across the grain

RABBET AND BLOCK.

Each

No. 140—WITH SCREW ADJUSTMENT; Right Side Detachable to change to Rabbet; Cutter set on a Skew; Length 7 inches; Size of Cutter 1¾ inches; Weight each about 2 lbs... $1.40

A Detachable Side will easily change this Tool from a Block Plane to a Rabbet Plane, or vice versa. The Cutter is set on a Skew.



BULL NOSE RABBET, Nickel Plated.

Each

No. 90—WITH SCREW ADJUSTMENT; Length 4 inches; Size of Cutter 1 inch; Weight each about 1 lb..... $2.20

This Plane is Designed for Fine Cabinet Work where Extreme Accuracy is required. The Sides and Bottom being Square with each other, the Plane will lie Perfectly Flat, on either side, and can be used Right or Left.

One in a Cardboard Box.

ADJUSTABLE PLANES.

STANLEY'S.

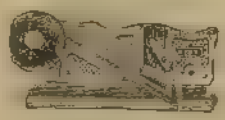
JAPANNED CAST IRON FRAMES AND CLAMPS; Rosewood Handles and Knobs, Tempered and Polished Tool Steel Cutters.

IMPROVED SCRUB.

Each

No. 40—With Rounded Cutting Edge; Length 9½ inches; Size of Cutter 1⅛ inches; Weight each about 2¼ lbs. $1 10

This Tool has a Single Iron, with the Cutting Edge Rounded, and is Particularly Adapted for Roughing Down Work before using a Jack or other Plane.



SIDE RABBET.

Each

No. 98—RIGHT HAND; Length 4 inches; Size of Cutter 1½ inches; Weight each about ½ lb.. $1 00

No. 99—LEFT HAND; Length 4 inches; Size of Cutter 1½ inches; Weight each about ½ lb. 1.00

Used for Side Rabbeting and Trimming Dados, Mouldings and Grooves of all sorts. The Reversible Nose Piece gives the Tool a form by which it will work close up into corners when required.

ROUTER
With Closed Throat.

Each

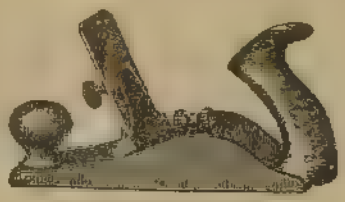
No. 71½—Nickel Plated Frame; Complete with one Cutter each ¼ and ½ inch; Length 7⅝ inches; Weight each about 2 lbs $1 65

It is Perfectly Adapted to Smooth the Bottom of Grooves, Panels or all Depressions Below the General Surface of any Woodwork. The Bits can also be Clamped to the Back Side of the Upright Post, and Outside of the Stock. In this position they will Plane into Corners will Rout out Mortises for Sash-Frame Pulleys, or will Smooth Surfaces not easily reached with any other Tool.

IMPROVED DADO.

Nos.	39¼	39⅜	39½	39⅝	39¾	39⅞	391
Length, inches	8	8	8	8	8	8	8
Size of Cutter, in.	¼	⅜	½	⅝	¾	⅞	1
Wt. each about, lbs.	1⅛	2	2	2	2¼	2¼	2½
Each	$1.65	1.65	1.65	1.65	1.65	1.65	1.6.

The Cutter is set on a Skew Plane, is fitted with a Depth Gauge, adjustable by Thumb Screw, also has Two Spurs which can be adjusted to take up wear as well as for depth of Cut.



SCRAPER

Each

No. 112—Adjustable, Japanned Cast Iron Frame, Rosewood Handle and Knob, Polished and Tempered Tool Steel Cutter; Length 9 inches; Size of Cutter 3 inches; Weight each about 4 lbs. $2.20

Extra Cutters for No. 112 Scraper, Size 3 inches; Weight each about ¼ lb. 20

This Tool is used for Scraping and Finishing Veneers or Cabinet Work.

DOUBLE END MATCH.

NICKEL PLATED Cast Iron Frame, Handles and Caps; Tempered and Polished Tool Steel Cutters; Cuts both Tongue and Groove.

Nos.	146	147	148
Length, inches	9	9	9
Size of Cutter, inches	⅜	⅝	⅞
Cut Groove, inch	⅛	3/16	¼
Weight each about, lbs.	1½	2¼	2¾
Each	$2.20	2 20	2.20

This Tool is provided with both Tongue and Groove Irons. With One Side a Tongue can be Cut, and by Reversing Ends the Plane will Cut a Groove to Fit. The Tonguing Tools are made Wider on One Side for use of Thicker stuff than the Plane will Tongue and Groove in the Center.

FURRING.

Each

No. 340—JAPANNED Cast Iron Frame and Cap; Varnished Rosewood Handle and Knob; Tempered and Polished Tool Steel Cutter; Length 10 inches; Size of Cutter 2 inches; Weight each about 3 lbs. $1.65

Especially Adapted for use on Lumber as it comes Roughly Sawed from the mill before using a Smooth Plane.

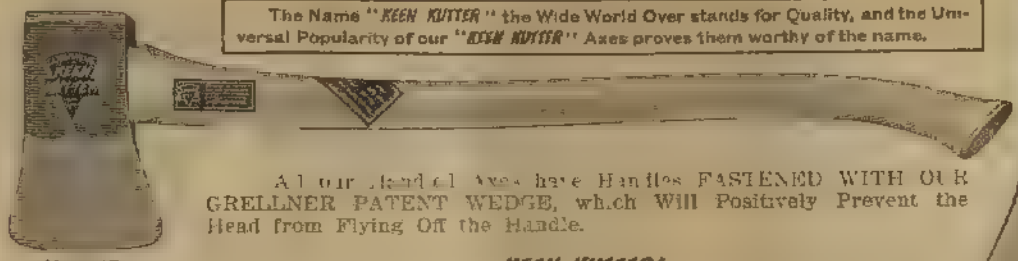
One in a Cardboard Box.

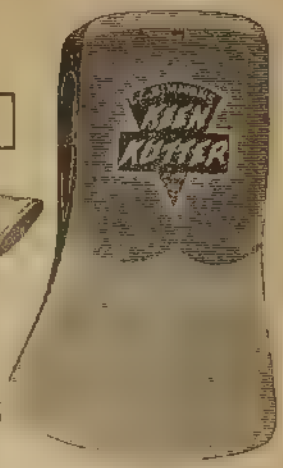
TRADE MARK:
E. C. SIMMONS' *KEEN KUTTER*,
REGISTERED.

AXES.

SINGLE BIT.

The Name "*KEEN KUTTER*" the Wide World Over stands for Quality, and the Universal Popularity of our "*KEEN KUTTER*" Axes proves them worthy of the name.





No. 102F

All our Handled Axes have Handles FASTENED WITH OUR GRELLNER PATENT WEDGE, which Will Positively Prevent the Head from Flying Off the Handle.

KEEN KUTTER

Soft Steel Body, Hardened Poll; Highest Grade Crucible Forged Steel Bit, HAND TEMPERED; GOLD BRONZED, WITH POLISHED HEAD AND BIT.

HOOSIER OR ZEECK (REVERSIBLE PATTERN, PLAIN

	No. 102	
Weights, Unhandled, Assorted, lbs.	3½ to 4½	4 to 5
Weight per dozen, Handled, about, lbs.	70	75
No. 102F —With *KEEN KUTTER* Handle No. KR36, Per Doz.	$18.50	18.75
No. 102J —With Cumberland Handle No. CSXX, Per Doz.	$17.25	17.50
No. 102DD—With Minnesota Chief Handle, No. MC3X Per Doz	$17.25	17.50
No. 102 —WITHOUT HANDLE Per Doz	$12.75	13.00

MICHIGAN PATTERN, PLAIN (for Illustration see Above).

			Assorted	
Weights, Unhandled, lbs.	3½	4	3 to 4	3½ to 4½
Weight per dozen, Handled, about, lbs.	65	71	65	67
No. 103C —With Wyoming Oval Handle No. WR36. Per Dozen,	$18.25	18.50	18.25	18.50
No. 103S —With Cumberland Handle No. CAA. Per Dozen,	$17.75	18.00	17.75	18.00
No. 103V —With Blue Oak Handle No. A1R. Per Dozen,	$16.75	17.00	16.75	17.00
No. 103 —WITHOUT HANDLE Per Dozen,	$12.50	12.75	12.50	12.75

Weights, Unhandled, Assorted, lbs.	3½ to 4	3½ to 4½	4 to 5
Weight per dozen, Handled, about, lbs.	67	70	75
No. 103C —With Wyoming Oval Handle No. WR36. Per Dozen	$18.50	18.50	18.75
No. 103S —With Cumberland Handle No. CAA. Per Dozen	$18.00	18.00	18.25
No. 103V —With Blue Oak Handle No. A1R. Per Dozen	$17.00	17.00	17.25
No. 103 —WITHOUT HANDLE Per Dozen	$12.75	12.75	13.00

WISCONSIN PATTERN, PLAIN.

Weights, Unhandled, Assorted, lbs.	3¼ to 3¾	3½ to 4	3½ to 4½
Weight per dozen, Handled, about, lbs.	62	67	70
No. 112L —With Cumberland Handle No. CSAA, Per Doz.	$17.75	18.00	18.00
No. 112FF With Wisconsin Handle No. R4X. Per Doz.	$17.75	18.00	18.00
No. 112X —With Blue Oak Handle No. A1N. Per Doz.	$16.75	17.00	17.00
No. 112 —WITHOUT HANDLE Per Doz.	$12.50	12.75	12.75

SOUTHERN KENTUCKY PATTERN, PLAIN.

Weights, Unhandled, Assorted, lbs.	3½ to 4½	4 to 5	4½ to 6
Weight per dozen, Handled, about, lbs	70	75	83
No. 116F —With *KEEN KUTTER* Handle No. KR36, Per Doz	$18.50	18.75	19.00
No. 116TH With Cumberland Handle No. CHA, Per Doz.	$17.25	17.50	17.75
No. 116QQ—With Standard Handle No. SXX Octagon Per Doz.	$17.00	17.35	17.50
No. 116 —WITHOUT HANDLE Per Doz.	$12.75	13.00	13.25

Handled Axes, One Dozen in a Crate; Unhandled Axes, One Dozen in a Wood Box.

For Approximate Shipping Weight of Unhandled Axes, Deduct 16 lbs. per Dozen from Weight of Same Axe Handled. Weight of Each Axe Stamped on the Poll.

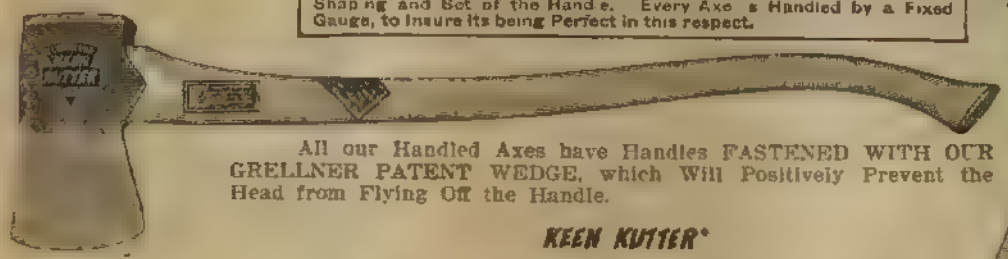
TRADE MARK
E. C. SIMMONS' *KEEN KUTTER*,
REGISTERED.

AXES.

SINGLE BIT.

Twenty Years experience in Handling Axes. IT IS NO EXPERIMENT WITH US.

Our Axe Handling Department is under Our Own Supervision, and we employ Workmen who know by many years experience the Correct Shaping and Set of the Handle. Every Axe is Handled by a Fixed Gauge, to insure its being Perfect in this respect.



No. 104T.

No. 115.

All our Handled Axes have Handles FASTENED WITH OUR GRELLNER PATENT WEDGE, which Will Positively Prevent the Head from Flying Off the Handle.

KEEN KUTTER*

Soft Steel Body; Hardened Poll; Highest Grade Crucible Forged Steel Bit, HAND TEMPERED; GOLD BRONZED, WITH POLISHED HEAD AND BIT.

REGULAR KENTUCKY PATTERN, PLAIN (for Illustration see Above)

	Weights, Unhandled, Assorted, lbs.		3½ to 4½	4 to 5	4½ to 5½	4½ to 6
	Weight per dozen, Handled, about, lbs.		70	75	80	83
No. 104D	—With Champion Octagon Handle No. CH36	Per Dozen,	$18.00	18.25	18.50	18.50
No. 104T	—With Cumberland Handle No. CA	Per Dozen,	$17.25	17.50	17.75	17.75
No. 104QQ	—With Standard Octagon Handle No. SXX	Per Dozen,	$17.00	17.25	17.50	17.50
No. 104	—WITHOUT HANDLE	Per Dozen,	$12.75	13.00	13.25	13.25

BALTIMORE KENTUCKY PATTERN, PLAIN (for Illustration see Above).

	Weights, Unhandled, Assorted, lbs.		3½ to 4½	4 to 5	4½ to 5½
	Weight per dozen, Handled, about, lbs.		70	75	80
No. 115D	—With Champion Octagon Handle No. CH36	Per Dozen	$18.00	18.25	18.50
No. 115Q	—With Cumberland Handle No. CXX	Per Dozen	$17.25	17.50	17.75
No. 115AA	—With Delmar Handle No. D36	Per Dozen	$15.75	16.00	16.25
No. 115	—WITHOUT HANDLE	Per Dozen	$12.75	13.00	13.25

YANKEE (NARROW HEAD) PATTERN, BEVELED.

	Weights, Unhandled, Assorted, lbs.		3 to 4	3½ to 4½	4 to 5
	Weight per dozen, Handled, about, lbs.		65	70	75
No. 105A	—With Nonpareil Octagon Handle No. NX36,	Per Doz.	$19.25	19.50	19.75
No. 105B	—With Colorado Octagon Handle	Per Doz.	$18.75	19.00	19.25
No. 105V	—With Blue Oak Handle No. A1R	Per Doz.	$17.30	17.55	17.80
No. 105	—WITHOUT HANDLE	Per Doz.	$13.25	13.50	13.75

DAYTON (WIDE HEAD) PATTERN, BEVELED

	Weights, Unhandled, Assorted, lbs.		3 to 4	3½ to 4½	4 to 5
	Weight per dozen, Handled, about, lbs.		65	70	75
No. 106F	—With *KEEN KUTTER* Handle No. KR36,	Per Doz.	$19.00	19.25	19.50
No. 106CC	—With Minnesota Chief Handle No. MC4X	Per Doz.	$18.50	18.75	19.00
No. 106Q	—With Cumberland Handle No. CXX,	Per Doz.	$17.75	18.00	18.25
No. 106	—WITHOUT HANDLE	Per Doz.	$13.25	13.50	13.75

Handled Axes, One Dozen in a Crate; Unhandled Axes, One Dozen in a Wood Box

For Approximate Shipping Weight of Unhandled Axes, Deduct 16 lbs per Dozen from Weight of Same Axe Handled. Weight of Each Axe Stamped on the Poll.

TRADE MARK:
E. C. SIMMONS' *KEEN KUTTER*
REGISTERED.

AXES.

SINGLE BIT.

The name "*KEEN KUTTER*" the Wide World over stands for Quality, and the Universal Popularity of our "*KEEN KUTTER*" Axes proves them worthy of the name.

No. 109B.

No. 108.

All our Handled Axes have Handles FASTENED WITH OUR GRELLNER PATENT WEDGE, which Will Positively Prevent the Head from Flying Off the Handle.

KEEN KUTTER*

Soft Steel Body; Hardened Poll; Highest Grade Crucible Forged Steel Bit, HAND TEMPERED, FULL POLISHED AND ETCHED.

YANKEE (NARROW HEAD) PATTERN, PLAIN.

	3 to 4	3½ to 4½	4 to 5
Weights, Unhandled, Assorted, lbs.	65	70	75
Weight per dozen, Handled, about, lbs.			
No. 107E —With *KEEN KUTTER* Handle No. KX36, per Doz.	$19 75	20.00	20 25
No. 107CC —With Minnesota Chief Handle No. MC4X ... Per Doz.	$19 00	19.25	19 50
No. 107T —With Cumberland Handle No. CA, Per Doz.	$18 25	18.50	18 75
No. 107 —WITHOUT HANDLE ... Per Doz.	$13 75	14.00	14.25

MICHIGAN PATTERN, PLAIN (for Illustration see Above).

	3 to 4	3½ to 4½	4 to 5
Weights, Unhandled, Assorted, lbs.	65	70	75
Weight per dozen, Handled, about, lbs.			
No. 108C —With Wyoming Oval Handle No. WR36 ... Per Dozen	$19.50	19.75	20.00
No. 108FF—With Wisconsin Handle No. R4X ... Per Dozen	$19.00	19 25	19 50
No. 108X —With Blue Oak Handle No. A1N ... Per Dozen	$18.00	18.25	18.50
No. 108 —WITHOUT HANDLE ... Per Dozen	$13.75	14.00	14.25

YANKEE (NARROW HEAD) PATTERN, BEVELED (for Illustration see Above).

	3 to 4	3½ to 4½	4 to 5
Weights, Unhandled, Assorted, lbs.	65	70	75
Weight per dozen, Handled, about, lbs.			
No. 109B —With Colorado Octagon Handle ... Per Dozen	$20.00	20 25	20 50
No. 109M —With Cumberland Handle No. CSA ... Per Dozen	$19.00	19.25	19 50
No. 109DD—With Minnesota Chief Handle No. MC3X ... Per Dozen	$19.00	19.25	19.50
No. 109 —WITHOUT HANDLE ... Per Dozen	$14.50	14.75	15.00

Handled Axes, One Dozen in a Crate; Unhandled Axes, One Dozen in a Wood Box.

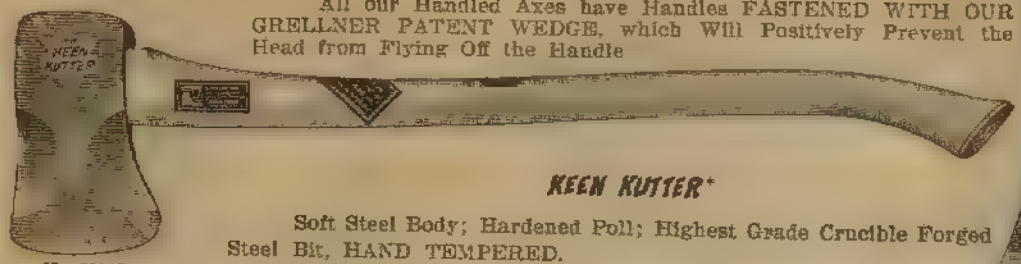
For Approximate Shipping Weight of Unhandled Axes, Deduct 16 lbs. per Dozen from Weight of Same Axe Handled. Weight of Each Axe Stamped on the Poll.

TRADE MARK
E. C. SIMMONS' KEEN KUTTER,
REGISTERED.

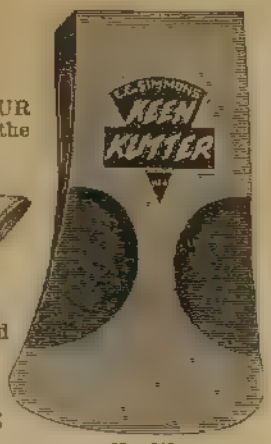
AXES.

SINGLE BIT.

All our Handled Axes have Handles FASTENED WITH OUR GRELLNER PATENT WEDGE, which Will Positively Prevent the Head from Flying Off the Handle



No. 111/C.



No. 113.

KEEN KUTTER

Soft Steel Body; Hardened Poll; Highest Grade Crucible Forged Steel Bit, HAND TEMPERED.

YANKEE (NARROW HEAD) PATTERN, HOLLOW BEVEL; FULL POLISHED AND ETCHED.

	Weights, Unhandled, Assorted, lbs.	3 to 4	3½ to 4½	4 to 5	4½ to 5½
	Weight per dozen, Handled, about, lbs.	65	70	75	80
No. 110A	—With Nonpareil. Oct. Hdl. No. NX36, Per Doz.	$24.25	24.50	24.75	25.00
No. 110E	—With KEEN KUTTER Handle No. KX36, Per Doz.	$24.00	24.25	24.50	24.75
No. 110 S	—With Cumberland Handle No. CAA, Per Doz.	$23.50	23 75	24.00	24.25
No. 110	—WITHOUT HANDLE ..... Per Doz.	$18.25	18.50	18.75	19.00

MICHIGAN PATTERN, HOLLOW BEVEL; FULL POLISHED AND ETCHED.

(for Illustration see Above).

	Weights, Unhandled, Assorted, lbs.	3 to 4	3½ to 4½	4 to 5
	Weight per dozen, Handled, about, lbs.	65	70	75
No. 111C	With Wyoming Oval Handle No WR36 ..... Per Dozen	$23 75	24.00	24.25
No. 111CC	—With Minnesota Chief Handle No. MC4X ..... Per Dozen	$23 50	23.75	24.00
No. 111T	—With Cumberland Handle No. CA ..... Per Dozen	$22.75	23.00	23.25
No. 111	—WITHOUT HANDLE ..... Per Dozen	$18.25	18.50	18.75

Handled Axes, One Dozen in a Crate, Unhandled Axes, One twelfth Dozen in a Carton, One Dozen in a Wood Box.

Nos 110 and 111 KEEN KUTTER HOLLOW BEVELED AXES are for the Expert Chopper, built for rapidity and ease of cutting. The carefully ground bevels afford a quick clearance for the Axe, which will not bind in the cut, the grinding is extra keen and the temper hard, for use under most exacting conditions These Axes are not recommended for ordinary use or for Amateurs, but are indispensable to an Expert Chopper who can appreciate an extra high class tool.

DAYTON (WIDE HEAD) PATTERN, HOLLOW BEVEL; FULL POLISHED; BEVELS PAINTED RED (for Illustration see Above).

	Weights, Unhandled, Assorted, lbs.	3 to 4	3½ to 4½	4 to 5	4½ to 5½
	Weight per dozen, Handled, about, lbs.	65	70	75	80
No. 113D	—With Champion Octagon Handle No CH36 .. .. Per Dozen,	$19.75	20 00	20.25	20.50
No. 113Q	—With Cumberland Handle No CXX ..... Per Dozen,	$19.00	19.25	19 50	19.75
No. 113V	—With Blue Oak Handle No. A1R ..... Per Dozen,	$18.50	18.75	19.00	19.25
No. 113	—WITHOUT HANDLE ..... Per Dozen,	$14.50	14.75	15.00	15.25

MICHIGAN PATTERN, HOLLOW BEVEL; FULL POLISHED; BEVELS PAINTED RED.

	Weights, Unhandled, Assorted, lbs.	3 to 4	3½ to 4½	4 to 5
	Weight per dozen, Handled, about, lbs.	65	70	75
No. 114C	—With Wyoming Oval Hdl., No. WR36, Per Doz.	$20.00	20.25	20.50
No. 114/S	—With Cumberland Handle No. CAA, Per Doz.	$19.75	20.00	20.25
No. 114EE	—With Minnesota Chief Handle No. MC3X ..... Per Doz.	$18.00	18.25	18.50
No. 114	WITHOUT HANDLE ..... Per Doz.	$14.50	14.75	15.00

Handled Axes, One Dozen in a Crate; Unhandled Axes, One Dozen in a Wood Box.

For Approximate Shipping Weight of Unhandled Axes, Deduct 16 lbs. per Dozen from Weight of Same Axe Handled. Weight of Each Axe Stamped on the Poll.

TRADE MARK
E. C. SIMMONS' *KEEN KUTTER.*
REGISTERED

AXES.

DOUBLE BIT.

All our Handled Axes have Handles FASTENED WITH OUR GREELNER PATENT WEDGE, which will Positively Prevent the Head from Flying off the Handle.

No. 155DA.

No. 157

***KEEN KUTTER*.**

Soft Steel Body; Highest Grade Crucible Forged Steel Bits, Hand Tempered

SWAMPING PATTERN; GOLD BRONZED, WITH POLISHED BITS.

(For Illustration see Above.)

		3 to 4	3½ to 4½
Weights, Unhandled, Assorted, lbs.		[illegible]	[illegible]
Weight per dozen, Handled, about, lbs.		[illegible]	70
No. 155DA—With Nonpareil Handle No. NDX36	Per dozen	$[illegible]	[illegible]
No. 155DF—With Cumberland Handle No. CDXX	Per dozen	$22.[illegible]	22.[illegible]
No. 155DB—With Standard Handle No. SDAA	Per dozen	$21.25	21.50
No. 155 —WITHOUT HANDLE	Per dozen	$17.[illegible]	17.75

FALLING PATTERN; GOLD BRONZED, WITH POLISHED BITS.

(For Illustration see Above.)

		3 to 4	3½ to 4½
Weights, Unhandled, Assorted, lbs.			
Weight per dozen, Handled, about, lbs.		65	70
No. 157DC—With *KEEN KUTTER* Handle No. KDX36	Per dozen	$23.00	[illegible]
No. 157DH—With Cumberland Handle No. CDA	Per dozen	$22.00	[illegible]
No. 157DJ—With Cumberland Handle No. CDI	Per dozen	$21.[illegible]	[illegible]
No. 157 —WITHOUT HANDLE	Per dozen	$17.[illegible]	[illegible]

Handled Axes, One Dozen in a Crate; Unhandled Axes, One Dozen in a Wood Box.

For Approximate Shipping Weight of Unhandled Axes, deduct 16 lbs. per dozen from Weight of same Axe Handled. Weight of each Axe stamped near the Eye.

The Mark

E. C. SIMMONS
KEEN KUTTER
TRADE ST. LOUIS MARK
U.S.A.

—AND—

The Motto

"The Recollection of QUALITY Remains long after the PRICE is forgotten." E. C. Simmons

TRADE MARK REGISTERED

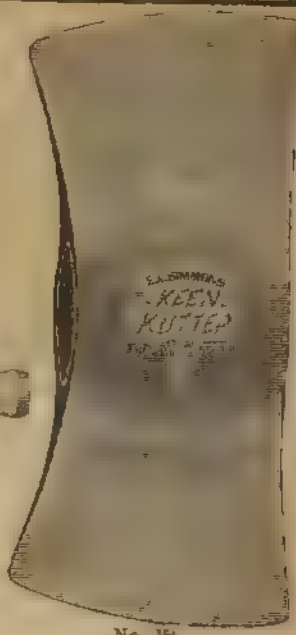
TRADE MARK:
E. C. SIMMONS' *KEEN KUTTER*,
REGISTERED.

AXES.

DOUBLE BIT.

All our Handled Axes have Handles FASTENED WITH OUR GRELLNER PATENT WEDGE, which Will Positively Prevent the Head from Flying Off the Handle.

No. 154DE



No. 156

KEEN KUTTER*

Soft Steel Body; Highest Grade Crucible Forged Steel Bits. HAND TEMPERED.

MICHIGAN OR CROWN PATTERN, GOLD BRONZED, WITH POLISHED BITS

Weights, Unhandled, Assorted, lbs.	3½ to 4	3½ to 4½	4 to 5
Weight per dozen, Handled, about, lbs.	67	70	75
No. 153DE—With *KEEN KUTTER* Handle No KDR36, Per Doz.	$23.25	23.25	23.50
No. 153DG—With Cumberland Handle No CDAA ..... Per Doz.	$23.00	23.00	23.25
No. 153DK—With Blue Oak Handle No. A1RDB, Per Doz.	$22.00	22.00	22.25
No. 153 —WITHOUT HANDLE ..... Per Doz.	$17.75	17.75	18.00

REGULAR OR WESTERN PATTERN, HOLLOW BEVEL FULL POLISHED, BEVELS PAINTED RED (for Illustration see above.)

Weights, Unhandled, Assorted, lbs.	3½ to 4½	4 to 5	4½ to 5½
Weight per dozen, Handled, about, lbs.	70	75	80
No. 154DE—With *KEEN KUTTER* Handle No. KDR36 . Per Dozen	$33.25	33.50	33.75
No. 154DH—With Cumberland Handle No. CDA ..... Per Dozen	$32.25	32.50	32.75
No. 154DS—With Standard Excelsior Oval Handle No. SDA. Per Dozen	$31.25	31.50	31.75
No. 154 —WITHOUT HANDLE .. Per Dozen	$27.75	28.00	28.50

REGULAR OR WESTERN PATTERN; FULL POLISHED AND ETCHED (for Illustration see Above).

Weights, Unhandled, Assorted, lbs.	3½ to 4½	4 to 5
Weight per dozen, Handled, about, lbs.	70	75
No. 156DA With Nonpareil DB Handle No NDX36 .. Per Dozen	$26.25	26.50
No. 156DK With Blue Oak Handle No. A1RDB . . . Per Dozen	$24.50	24.75
No. 156DS -With Standard Excelsior DB Handle Per Dozen	$23.75	24.00
No. 156 —WITHOUT HANDLE ..... Per Dozen	$20.25	20.50

Handled Axes, One Dozen in a Crate; Unhandled Axes, One Dozen in a Wood Box.

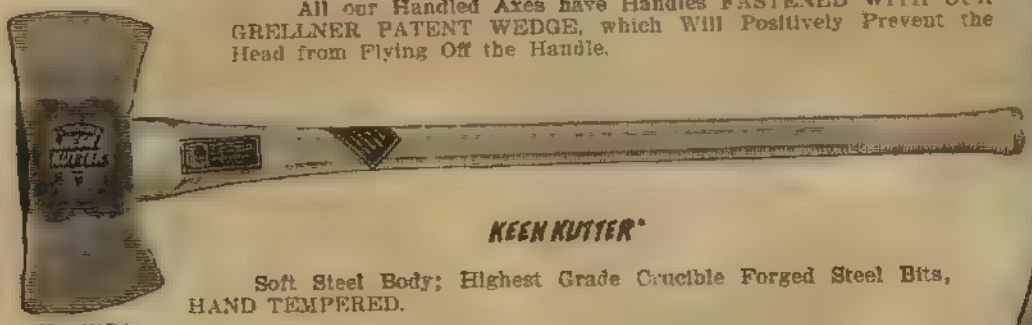
For Approximate Shipping Weight of Unhandled Axes, Deduct 16 lbs. per Dozen from Weight of Same Axe Handled. **Weight of Each Axe Stamped Near the Eye.**

TRADE MARK: E. C. SIMMONS' KEEN KUTTER. REGISTERED.

AXES.

DOUBLE BIT.

All our Handled Axes have Handles FASTENED WITH OUR GRELLNER PATENT WEDGE, which Will Positively Prevent the Head from Flying Off the Handle.



No. 150DA.

No. 151.

KEEN KUTTER*

Soft Steel Body; Highest Grade Crucible Forged Steel Bits, HAND TEMPERED.

REGULAR OR WESTERN PATTERN; GOLD BRONZED, WITH POLISHED BITS (for Illustration see Above).

	Weights, Unhandled, Assorted, lbs.		3 to 4	3½ to 4½	4 to 4½	4 to 5
	Weight per dozen, Handled, about, lbs.		65	70	72	75
No. 150DA	—With Nonpareil DB Handle No. NDX36	Per Dozen,	$23 50	23 75	24 00	24.00
No. 150DN	—With Wisconsin Handle No. DB4X	Per Dozen,	$22 75	23 00	23.25	23.25
No. 150DS	—With Standard Excelsior DB Handle	Per Dozen,	$21 00	21 25	21 50	21.50
No. 150	—WITHOUT HANDLE	Per Dozen,	$17.50	17.75	18.00	18.00

	Weights, Unhandled, Assorted, lbs.		4½ to 5½	4½ to 6	5 to 6
	Weight per dozen, Handled, about, lbs.		80	83	84
No. 150DA	—With Nonpareil DB Handle No. NDX36	Per Dozen	$24 25	24.25	24.50
No. 150DN	—With Wisconsin Handle No. DB4X	Per Dozen	$23 50	23.50	23.75
No. 150DS	—With Standard Excelsior DB Handle No. SDA	Per Dozen	$21 75	21.75	22.00
No. 150	—WITHOUT HANDLE	Per Dozen	$18.25	18.25	18.50

WISCONSIN PATTERN; GOLD BRONZED, WITH POLISHED BITS.

	Weights, Unhandled, Assorted, lbs.		3½ to 4	3½ to 4½	4 to 5
	Weight per dozen, Handled, about, lbs.		67	70	75
No. 151DA	With Nonpareil DB Handle No. NDX36	Per Dozen	$23 50	23 50	23.75
No. 151DK	—With Blue Oak Handle No. A1RDB	Per Dozen	$22 00	22 00	22.25
No. 151DS	—With Standard Excelsior DB Handle No. SDA	Per Dozen	$21 25	21 25	21.50
No. 151	—WITHOUT HANDLE	Per Dozen	$17.75	17.75	18.00

CALIFORNIA REVERSIBLE, OR HALF PEELING PATTERN; GOLD BRONZED, WITH POLISHED BITS.

	Weights, Unhandled, Assorted, lbs.	3 to 4	3½ to 4½	4 to 5
	Weight per dozen, Handled, about, lbs.	65	70	75
No. 152DA	—With Nonpareil DB Hdl., No. NDX36, Per Doz.	$23.25	23.50	23.75
No. 152DH	With Cumberland Handle No. CDA, Per Doz.	$22 [illegible]	22 [illegible]	22 50
No. 152DL	—With Blue Oak Handle No. B2RDB, Per Doz.	$20.00	20.25	20.50
No. 152	—WITHOUT HANDLE Per Doz.	$17.50	17.75	18.00

Handled Axes, One Dozen in a Crate; Unhandled Axes, One Dozen in a Wood Box.

For Approximate Shipping Weight of Unhandled Axes, Deduct 16 lbs. per Dozen from Weight of Same Axe Handled. Weight of Each Axe Stamped Near the Eye.

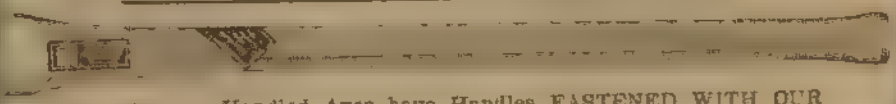
TRADE MARK:
E. C. SIMMONS' *KEEN KUTTER*,
REGISTERED

AXES.

SINGLE AND DOUBLE BIT.

Strictly High Grade Axes in our Special Blued Finish, which is Distinctive, being Covered by Patent. It is a Combination of Blue and Straw Color, Protected by a Lacquer which Prevents Rusting.

No. 250DA.



No. 200.

All our Handled Axes have Handles FASTENED WITH OUR GREILNER PATENT WEDGE, which Will Positively Prevent the Head from Flying Off the Handle.

***KEEN KUTTER* BLUE BRAND.**

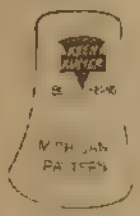
SINGLE BIT.

Soft Steel Straw Color Body; Hardened Poll; Highest Grade Crucible Forged Steel Bit; HAND TEMPERED, FIRE BLUED AND ETCHED.

NEW YANKEE (NARROW HEAD) PATTERN, PLAIN (for Illustration see Above).

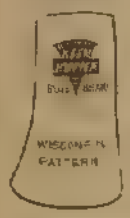
	Weights, Unhandled, Assorted, lbs	3 to 4	3½ to 4½	4 to 5	4½ to 5½
	Weight per dozen, Handled, about, lbs.	65	70	75	80
No. 200A	—With Nonpareil Octagon Handle No. NX36 . Per Dozen	$21.00	21.25	21.50	21.75
No. 200E	—With *KEEN KUTTER* Handle No. KX36 . Per Dozen,	$20.75	21.00	21.25	21.50
No. 200P	—With Cumberland Handle No. CXXX . Per Dozen,	$20.25	20.50	20.75	21.00
No. 200	—WITHOUT HANDLE . Per Dozen,	$15.00	15.25	15.50	15.75

MICHIGAN PATTERN, PLAIN.



	Weights, Unhandled, Assorted, lbs.	3 to 4	3¼ to 4¼	3½ to 4½	4 to 5
	Weight per dozen, Handled, about, lbs.	65	67	70	75
No. 201F	—With *KEEN KUTTER* Handle No. KR36 . Per Doz	$20.75	21.00	21.00	21.25
No. 201S	—With Cumberland Handle No. CAA . . Per Doz.	$20.25	20.50	20.50	20.75
No. 201V	—With Blue Oak Handle No. AIR . . . . Per Doz.	$19.25	19.50	19.50	19.75
No. 201	—WITHOUT HANDLE . . . . . Per Doz.	$15.00	15.25	15.25	15.50

WISCONSIN PATTERN, PLAIN.



	Weights, Unhandled, Assorted, lbs.	3¼ to 3¾	3½ to 4	3½ to 4½
	Weight per dozen, Handled, about, lbs.	62	67	70
No. 202C	—With Wyoming Oval Hdl. No. WR36 Per Doz.	$20.75	21.00	21.00
No. 202F	—With *KEEN KUTTER* Handle No. KR36, Per Doz.	$21.00	21.25	21.25
No. 202GG	—With Wisconsin Handle No. R3X, Per Doz.	$19.50	19.75	19.75
No. 202	—WITHOUT HANDLE . . . . . Per Doz	$15.00	15.25	15.25

DOUBLE BIT.

Soft Steel Straw Color Body, Highest Grade Crucible Forged Steel Bits; HAND TEMPERED, FIRE BLUED AND ETCHED.

REGULAR OR WESTERN PATTERN (for Illustration see Above).

	Weights, Unhandled, Assorted, lbs	3½ to 4½	4 to 5	4½ to 5½
	Weight per dozen, Handled, about, lbs.	70	75	80
No. 250DA	With Nonpareil DB Handle No. NDX36 Per Doz	$26.00	26.25	26.50
No. 250DH	—With Cumberland Handle No. CDA . . . . . Per Doz.	$24.75	25.00	25.25
No. 250DK	With Standard Extra DB Handle No. SDAA Per Doz.	$24.50	24.75	25.00
No. 250	—WITHOUT HANDLE . . . . . Per Doz.	$20.25	20.50	20.75

WISCONSIN PATTERN.

	Weights, Unhandled, Assorted, lbs.	3½ to 4	3½ to 4½
	Weight per dozen, Handled, about, lbs.	67	70
No. 251DA	—With Nonpareil DB Handle No. NDX36 . . Per Doz	$26.00	26.00
No. 251DK	With Blue Oak Handle No. AIRDB . . . . Per Doz	$24.75	24.75
No. 251DS	—With Standard Excelsior DB Hdl. No. SDA. Per Doz	$23.75	23.75
No. 251	—WITHOUT HANDLE . . . . . Per Doz	$20.25	20.25

Handled Axes, One Dozen in a Crate; Unhandled Axes, One Dozen in a Wood Box.

For Approximate Shipping Weight of Unhandled Axes Deduct 16 lbs. per Dozen from Weight of Same Axe Handled. Weight of Single Bit Axe Stamp, Double B. Axes Stamped Near the Eye

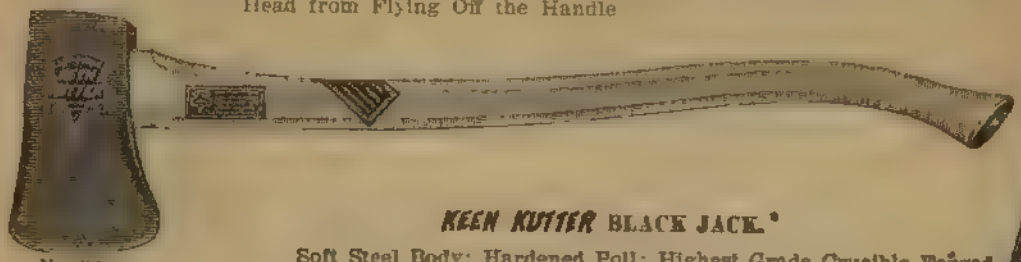
TRADE MARK: E. C. SIMMONS' *KEEN KUTTER*, REGISTERED.

AXES.

Well Shaped and Durable; Suitable for Knotty or Frozen Timber.

SINGLE BIT.

All our Handled Axes have Handles FASTENED WITH OUR GRELLNER PATENT WEDGE, which Will Positively Prevent the Head from Flying Off the Handle



No. 300Q

No. 301

KEEN KUTTER BLACK JACK.*

Soft Steel Body; Hardened Poll; Highest Grade Crucible Forged Steel Bit, HAND HAMMERED AND HAND WHETTED, EXTRA HARD HAND TEMPERED; NATURAL BLACK FINISH.

NEW YANKEE (NARROW HEAD) PATTERN, PLAIN (for Illustration see Above).

	Weights, Unhandled, Assorted, lbs.	3 to 4	3½ to 4	3½ to 4½
	Weight per dozen, Handled, about, lbs.	65	67	70
No. 300E	—With *KEEN KUTTER* Handle No KX36 ... Per Dozen	$20 25	20.50	20.50
No. 300C	—With Minnesota Chief Handle No MC4X ... Per Dozen	$19 75	20 00	20 00
No. 300Q	—With Cumberland Handle No CXX ... Per Dozen	$19.00	19 25	19.25
No. 300	—WITHOUT HANDLE ... Per Dozen	$14.50	14.75	14.75

	Weights, Unhandled, Assorted, lbs.	4 to 5	4½ to 5½
	Weight per dozen, Handled, about, lbs.	75	80
No. 300E	With *KEEN KUTTER* Handle No. KX36 ... Per Dozen	$20.75	21.00
No. 300C	—With Minnesota Chief Handle No. MC4X ... Per Dozen	$20 25	20.50
No. 300Q	—With Cumberland Handle No. CXX ... Per Dozen	$19.50	19.75
No. 300	—WITHOUT HANDLE ... Per Dozen	$15.00	15.25

DAYTON (WIDE HEAD) PATTERN, PLAIN (for Illustration see Above).

	Weights, Unhandled, lbs.	3½	4	4½
	Weight per dozen, Handled, about, lbs.	65	71	76
No. 301A	—With Nonpareil Octagon Handle No NX36 ... Per Dozen	$20.50	20.75	21.00
No. 301L	—With Cumberland Handle No. CSAA ... Per Dozen	$19.75	20.00	20.25
No. 301NN	—With Lone Star Octagon Handle No LS ... Per Dozen	$19.25	19.50	19.75
No. 301	—WITHOUT HANDLE ... Per Dozen	$14.50	14.75	15.00

	Weights, Unhandled, Assorted, lbs.	3 to 4	3½ to 4½	4 to 5	4½ to 5½
	Weight per dozen, Handled, about, lbs.	65	70	75	80
No. 301A	—With Nonpareil Octagon Handle No. NX36. Per Dozen,	$20.50	20.75	21.00	21.25
No. 301L	—With Cumberland Handle No CSAA ... Per Dozen,	$19.75	20.00	20.25	20.50
No. 301NN	—With Lone Star Octagon Handle No LS ... Per Dozen,	$19 25	19.50	19.75	20.00
No. 301	—WITHOUT HANDLE ... Per Dozen,	$14.50	14.75	15.00	15.25

MICHIGAN PATTERN, PLAIN.

	Weights, Unhandled, Assorted, lbs.	3 to 4	3¼ to 4¼	3½ to 4½	4 to 5
	Weights per dozen, Handled, about, lbs.	65	67	67	75
No. 302C	—With Wyoming Oval Hdl No. WR36 Per Doz.	$20.00	20.25	20.25	20.50
No. 302FF	—With Wisconsin Handle No. R4X, Per Doz.	$19.75	20.00	20.00	20.25
No. 302T	—With Cumberland Handle No. CA. Per Doz.	$19.00	19 25	19.25	19.50
No. 302	—WITHOUT HANDLE ... Per Doz.	$14.50	14.75	14.75	15.00

Handled Axes, One Dozen in a Crate; Unhandled Axes, One Dozen in a Wood Box

For Approximate Shipping Weight of Unhandled Axes, Deduct 16 lbs per Dozen from Weight of Same Axe Handled. Weight of Each Axe Stamped on the Poll.

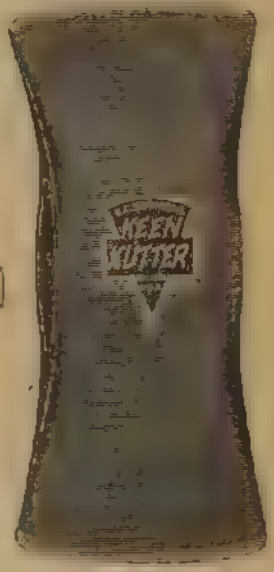
TRADE MARK
E. C. SIMMONS' KEEN KUTTER.
REGISTERED.

AXES.

DOUBLE BIT.

All our Handled Axes have Handles FASTENED WITH OUR GRELLNER PATENT WEDGE, which will Positively Prevent the Head from Flying Off the Handle.

No. 353 DE.



No. 354.

KEEN KUTTER BLACK JACK*.

Soft Steel Body. Highest Grade Crucible Forged Steel Bits. HAND HAMMERED AND HAND WHETTED, EXTRA HARD HAND TEMPERED; NATURAL BLACK FINISH

CALIFORNIA REVERSIBLE, OR HALF-PEELING PATTERN (For Illustration see Above.)

		3 to 4	3½ to 4½	4 to 5
Weights, Unhandled, Assorted, lbs.		65	70	75
Weight per dozen, Handled, about, lbs.				
No. 353DE—With KEEN KUTTER Handle No. KDR36	Per dozen	$24.75	25.00	25.75
No. 353DH—With Cumberland Handle No. CDA	Per dozen	$24.00	24.25	24.50
No. 353DK—With Blue Oak Handle No. A1RDB	Per dozen	$23.50	23.75	24.00
No. 353 —WITHOUT HANDLE	Per dozen	$19.50	19.75	20.00

SWAMPING PATTERN (For Illustration See Above)

		3 to 4	3½ to 4½
Weights, Unhandled, Assorted, lbs.		65	70
Weight per dozen, Handled, about, lbs.			
No. 354DA—With Nonpareil Handle No. NDX36	Per dozen	$25.25	25.50
No. 354DF—With Cumberland Handle No. CDXX	Per dozen	$24.00	24.25
No. 354DR—With Standard Handle No. SDAA	Per dozen	$23.25	23.50
No. 354 —WITHOUT HANDLE	Per dozen	$19.50	19.75

FALLING PATTERN.

		3 to 4	3½ to 4½
Weights, Unhandled, Assorted, lbs.		65	70
Weight per dozen, Handled, about, lbs.			
No. 355DC—With KEEN KUTTER Handle No. KDX36	Per dozen	$25.00	25.25
No. 355DH—With Cumberland Handle No. CDA	Per dozen	$24.00	24.25
No. 355DJ—With Cumberland Handle No. CD1	Per dozen	$23.50	23.75
No. 355 —WITHOUT HANDLE	Per dozen	$19.50	19.75

Handled Axes, One Dozen in a Crate; Unhandled Axes, One Dozen in a Wood Box

For Approximate Shipping Weight of Unhandled Axes, Deduct 16 lbs. per Dozen from Weight of Same Axe Handled. Weight of Each Axe Stamped Near the Eye.

TRADE MARK:
E. C. SIMMONS' KEEN KUTTER,
REGISTERED.

AXES.

SINGLE AND DOUBLE BIT.

All our Handled Axes have Handles FASTENED WITH OUR GRELLNER PATENT WEDGE, which Will Positively Prevent the Head from Flying Off the Handle.

No. 303DH.

No. 303.

Well Shaped and Durable; Suitable for Knotty or Frozen Timber.

KEEN KUTTER BLACK JACK*

SINGLE BIT.

Soft Steel Body; Hardened Poll; Highest Grade Crucible Forged Steel Bit; HAND HAMMERED AND HAND WHETTED, EXTRA HARD HAND TEMPERED; NATURAL BLACK FINISH.

ROCKAWAY JERSEY PATTERN, PLAIN (for Illustration see Above).

Weights, Unhandled, Assorted, lbs.		3½ to 4½	4 to 5
Weight per dozen, Handled, about, lbs.		70	75
No. 303D	—With Champion Octagon Handle No. CH36....Per Dozen	$20.00	20.25
No. 303Q	—With Cumberland Handle No. CXX.....Per Dozen	$19.25	19.50
No. 303QQ	—With Standard Octagon Handle No. SXX.....Per Dozen	$18.75	19.00
No. 303	—WITHOUT HANDLE .....Per Dozen	$14.75	15.00

WISCONSIN PATTERN, PLAIN.

Weights, Unhandled, Assorted, lbs.		3¾ to 3¾	3½ to 4	3½ to 4½
Weight per dozen, Handled, about, lbs.		62	67	70
No. 304F	—With KEEN KUTTER Handle No. KR36, Per Doz.	$20.25	20.50	20.50
No. 304CC	—With Minnesota Chief Handle No. MC4X .....Per Doz.	$19.75	20.00	20.00
No. 304X	—With Blue Oak Handle No. A1N...Per Doz.	$18.50	18.75	18.75
No. 304	—WITHOUT HANDLE .....Per Doz.	$14.50	14.75	14.75

DOUBLE BIT.

Soft Steel Body, Highest Grade Crucible Forged Steel Bits; HAND HAMMERED AND HAND WHETTED, EXTRA HARD HAND TEMPERED; NATURAL BLACK FINISH.

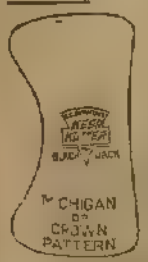
REGULAR OR WESTERN PATTERN.

Weights, Unhandled, Assorted, lbs.		3 to 4	3½ to 4½	4 to 5	4½ to 5½
Weight per dozen, Handled, about, lbs.		65	70	75	80
No. 350DA	—With Nonpareil DB Hdl. No NDX36 Per Doz.	$25 25	25 50	25.75	26.00
No. 350DK	With Blue Oak Handle No. A1RDB, Per Doz.	$23 50	23 75	24.00	24.25
No. 350DO	—With Wisconsin Handle No. DB3X, Per Doz.	$24.00	24.25	24.50	24.75
No. 350	—WITHOUT HANDLE .....Per Doz.	$19.50	19.75	20.00	20.25

WISCONSIN PATTERN (for Illustration see Above).

Weights, Unhandled, Assorted, lbs.		3½ to 4	3½ to 4½	4 to 5
Weight per dozen, Handled, about, lbs.		67	70	75
No. 351DA	—With Nonpareil DB Handle No. NDX36 .....Per Dozen	$25 50	25.50	25.75
No. 351DH	—With Cumberland Handle No. CDA.....Per Dozen	$24.25	24.25	24.50
No. 351DS	—With Standard Excelsior DB Handle No. SDA. Per Dozen	$24.25	24.25	24.50
No. 351	—WITHOUT HANDLE .....Per Dozen	$19.75	19.75	20.00

MICHIGAN OR CROWN PATTERN.



Weights, Unhandled, Assorted, lbs.		3½ to 4	3½ to 4½	4 to 5
Weight per dozen, Handled, about, lbs.		67	70	75
No. 352DF	—With Cumberland Hdl. No. CDXX, Per Doz.	$24.25	24.25	24.50
No. 352DO	—With Wisconsin Handle No DB3X, Per Doz	$24.25	24.25	24.50
No. 352DS	—With Stand Excel DB Hdl. No. SDA. Per Doz.	$23 25	23.25	23.50
No. 352	—WITHOUT HANDLE .....Per Doz.	$19.75	19.75	20.00

Handled Axes, One Dozen in a Crate; Unhandled Axes, One Dozen in a Wood Box.

For Approximate Shipping Weight of Unhandled Axes, Deduct 16 lbs. per Dozen from Weight of Same Axe Handled. Weight of Each Single Bit Axe Stamped on the Poll; Double Bit Axes Stamped Near the Eye.

CUTLERY SHOW CASES.

THE CAPITOL.

GOLDEN OAK, HIGHLY POLISHED, improved floor case 6 ft. long, 26 in wide and 42 in high **BEVELED POLISHED PLATE GLASS TOP,** laid in flush with wood work, which is the latest improved style, extra quality, double strength glass in front and each end horizontal sliding full sized double strength glass doors in rear. Doors fitted with Ball Bearing rollers, and arranged in such a manner so they will never get out of order. They can be easily removed for cleaning purposes. The inside is fitted with latest improved nickel plated, adjustable keyhole brackets and two neatly finished hard wood shelves Top shelf 12 in., bottom shelf 15 in. wide and full length of case. Each shelf has lip in front to prevent articles from falling off

PRICES and TERMS quoted upon application.

POCKET KNIFE PURSES.

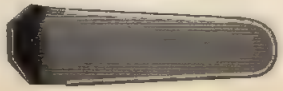
Chamois Skin, With Clasp.

Chamois Skin, With Button.

Nos.	3C	3½C	4C	5C
Length, inches	3	3½	4	5
Per dozen	$1 50	1 60	1.50	1.50

Nos.	3B	3½B	4B	5B
Length, inches	3	3½	4	5
Per dozen	$1.50	1.50	1.50	1.50

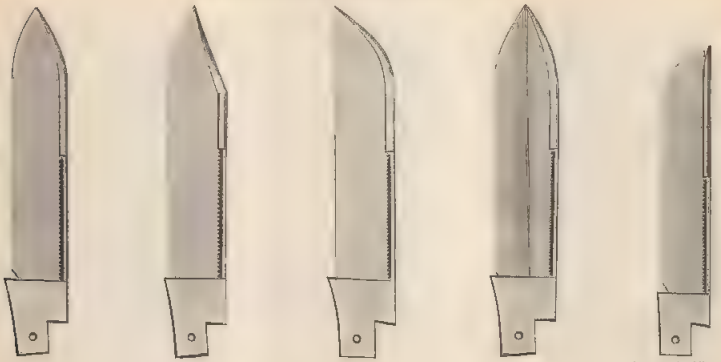
SLOYD KNIFE SHEATHS.



		Per dozen
No. 3S.	Leather, Length 3 in., Assorted Colors	$1.20
No. 3½S.	Leather, Length 3½ in., Assorted Colors	1.20

POCKET KNIVES.

SHAPES OF POCKET KNIFE BLADES.



Spear Point. Clip Point. Sheep Foot. Sabre Blade. Spey or Budding.

CAPITOL CUTLERY CO'S.

POCKET KNIVES and **CUTLERY** bearing the name **CAPITOL CUTLERY CO.** are **AMERICAN MADE** and as near **PERFECTION** as science, skilled labor, and fifty-four years of experience makes it possible to produce. They are **HAND FORGED** and **HARDENED** and **TEMPERED** individually. Made from S. & C. Wardlow's extra refined English Steel and **FULLY GUARANTEED.**

Per dozen

No. C13H. Horn Handle, One Blade 2½ in., Brass Lined $4.20

Per dozen

No. C110C. Cocobolo Handle, One Blade, 3 in., Iron Lined $1.80

Per dozen

No. C10R. Rosewood Handle, One Blade, Etched, 3⅜ in., Iron Lined $3.60

All above, half dozen in a box.

POCKET KNIVES.

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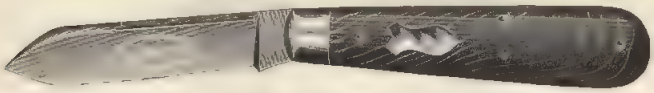

Per dozen

No. C16R. **Rosewood Handle, One Blade, Etched, 3½ in., Iron Lined** $4.20

Per dozen

No. C18R. **Rosewood Handle, One Blade, Etched, 3½ in., Iron Lined** $4.20

Per dozen

No. C102R. **Rosewood Handle, One Blade, 4 in., Iron Lined** $7.80
No. C102S. **Stag Handle, One Blade, 4 in., Iron Lined** 9.00

Per dozen

No. C108R. **Rosewood Handle, One Blade, 4½ in., Iron Lined** $10.20

Per dozen

No. C12S. **Stag Handle, One Blade, Etched, 4½ in., Spring Back, Brass Lined** $12.00
No. C12E. **Ebony Handles, One Blade, Etched, 4½ in., Spring Back, Brass Lined** 10.80

All above, half dozen in a box.

POCKET KNIVES.

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Per dozen

No. C289P. **Pearl Handle**, Two Blades, 2¼ in., Brass Lined $6.00

Per dozen

No. C257S. **Stag Handle**, Two Blades, 2½ in., German Silver Lined $10.20

Per dozen

No. C235S. **Stag Handle**, Two Blades, Etched, 2⅝ in., Brass Lined $6.00
No. C235P. **Pearl Handle**, Two Blades, Etched, 2⅝ in., Brass Lined 9.00

Per dozen

No. C253A. **Aluminum Handle**, Two Blades, Etched, 2⅝ in. $6.00

Per dozen

No. C277P. **Pearl Handle**, Two Blades, 2⅝ in., Brass Lined $10.80

Per dozen

No. C299P. **Pearl Handle**, One Blade and Scissors, 2⅝ in., German Silver Lined $21.00

Per dozen

No. C2066H. **Horn Handle**, Two Blades, Etched, 2¾ in., Brass Lined ..... $ 7.80
No. C2066P. **Pearl Handle**, Two Blades, Etched, 2¾ in., Brass Lined 12.00

All above, half dozen in a box.

POCKET KNIVES.

CAPITOL CUTLERY CO.'S.

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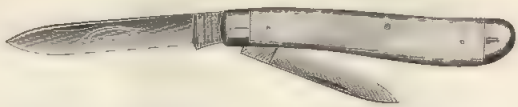

		Per dozen
No. C2020P.	Pearl Handle, Two Blades, Etched, 2¾ in., Brass Lined	$10 80

		Per dozen
No. C279P.	Pearl Handle, Two Blades, 2¾ in., German Silver Lined	$10 20

		Per dozen
No. C251I.	Ivory Handle, Two Blades, Etched, 2¾ in., Brass Lined	$6.00
No. C251P.	Pearl Handle, Two Blades, 2¾ in., Brass Lined	9.00

		Per dozen
No. C271P.	Pearl Handle, Two Blades, 2¾ in., Brass Lined	$12.00
No. C271S.	Stag Handle, Two Blades, 2¾ in., Brass Lined	7.80

		Per dozen
No. C295P.	Pearl Handle, Two Blades, 2¾ in., Brass Lined	$15 00

		Per dozen
No. C297P.	Pearl Handle, Two Blades, 2¾ in., Brass Lined	$15.00

		Per dozen
No. C237P.	Pearl Handle, Two Blades, Etched, 2⅞ in., Brass Lined	$12.00
No. C237S.	Stag Handle, Two Blades, 2⅞ in., Brass Lined	9.00

All above, half dozen in a box.

POCKET KNIVES.

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Per dozen

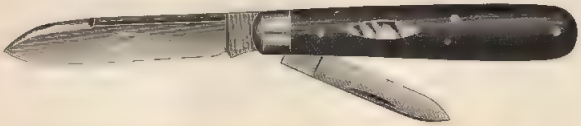
No. C265P. Pearl Handle, Two Blades, 2⅞ in., German Silver Lined $15.00

Per dozen

No. C2019P. Pearl Handle, Two Blades, 2⅞ in., German Silver Lined $21.00

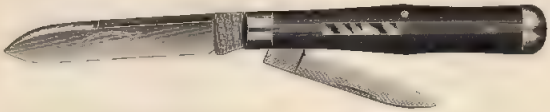
Per dozen

No. C255P. Pearl Handle, Two Blades, 2⅞ in., Brass Lined $13.00



Per dozen

No. C2008E. Ebony Handle, Two Blades, Etched, 3 in., Brass Lined $6.00



Per dozen

No. C2094E. Ebony Handle, Two Blades, Etched, 3 in., Brass Lined $7 20

Per dozen

No. C242E. Ebony Handle, Two Blades, Etched, 3 in., Brass Lined $7.20

Per dozen

No. C2086E. Ebony Handle, Two Blades, Etched, 3 in., Brass Lined $7 20

All above, half dozen in a box

POCKET KNIVES.

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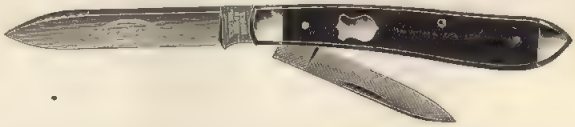

		Per dozen
No. C2064E.	**Ebony Handle**, Two Blades, Etched, 3 in., Brass Lined	$ 7.80
No. C2064C.	**Cocobolo Handle**, Two Blades, Etched, 3 in., Brass Lined	7.80
No. C2064S.	**Stag Handle**, Two Blades, Etched, 3 in., Brass Lined	9.00
No. C2064B.	**Bone Handle**, Two Blades, Etched, 3 in., Brass Lined	9.00
No. C2064P.	**Pearl Handle**, Two Blades, Etched, 3 in., Brass Lined	18.00

		Per dozen
No. C225H.	**Horn Handle**, Two Blades, Etched, 3 in., Brass Lined	$ 9.00
No. C225P.	**Pearl Handle**, Two Blades, Etched, 3 in., Brass Lined	18.00

		Per dozen
No. C269S.	**Stag Handle**, Two Blades, Etched, 3 in., Brass Lined	$6.00

		Per dozen
No. C27S.	**Stag Handle**, Two Blades, Etched, 3 in., Brass Lined	$6.00

		Per dozen
No. C241GS.	**Genuine Stag Handle**, Two Blades, Etched, 3 in., Brass Lined	$10.20
No. C241P.	**Pearl Handle**, Two Blades, Etched, 3 in., Brass Lined	15.00
No. C275S.	**Stag Handle**, Two Blades, Etched, 3 in., Brass Lined	7.80

		Per dozen
No. C285A.	**Aluminum Handle**, Two Blades, 3 in.	$10.20

All above, half dozen in a box.

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Per dozen

No. **C281P. Pearl Handle,** Two Blades, Etched, 3 in., Brass Lined $10.80

Per dozen

No. **C219P. Pearl Handle,** Two Blades, Etched, 3 in., Brass Lined $12.00

Per dozen

No. **C217P. Pearl Handle,** Two Blades, Etched, 3 in., Brass Lined $15.00

Per dozen

No. **C2009AI. Antique Ivory Handle,** Two Blades, 3 in., Brass Lined ..... $ 7.20
No. **C2009P. Pearl Handle,** Two Blades, Etched, 3 in., Brass Lined 15.00

Per dozen

No. **C2028P. Pearl Handle,** Two Blades, Etched, 3 in., Brass Lined $15 00

Per dozen

No. **C229AI. Antique Ivory Handle,** Two Blades, Etched, 3 in. German Silver Lined $12.00

Per dozen

No. **C23P. Pearl Handle,** Two Blades, 3 in., German Silver Lined, ... $24.00
No **C29S. Stag Handle,** Two Blades, Etched, 3 in., German Silver Lining and Tips 15 00

All above half dozen in a box.

POCKET KNIVES.

CAPITOL CUTLERY CO.'S.

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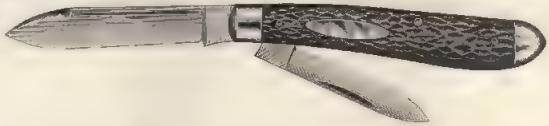
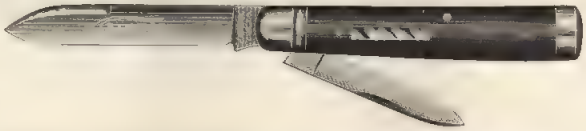
		Per dozen
No. C215P.	**Pearl Handle**, Two Blades, Etched, 3 in., Brass Lined	$12.00
No. C217E.	**Ebony Handle**, Two Blades, Etched, 3¼ in., Brass Lined	7.80
No. C217GS.	**Genuine Stag Handle**, Two Blades, Etched, 3¼ in., Brass Lined	10.20



		Per dozen
No. C292S.	**Stag Handle**, Two Blades, Etched, 3⅛ in., Brass Lined	$9.00
No. C292H.	**Horn Handle**, Two Blades, Etched, 3⅛ in., Bras Lined	9.00



		Per dozen
No. C2000E.	**Ebony Handle**, Two Blades, 3⅛ in., Etched, Brass Lined	$7.20

		Per dozen
No. C200S.	**Stag Handle**, Two Blades, Etched, 3⅛ in., Brass Lined	$ 7.20
No. C200C.	**Cocobolo Handle**, Two Blades, Etched 3⅛ in., Brass Lined	6.00
No. C200E.	**Ebony Handle**, Two Blades, Etched, 3⅛ in., Brass Lined	6.00
No. C200B.	**Bone Handle**, Two Blades, Etched, 3⅛ in., Brass Lined	7.20
No. C200P.	**Pearl Handle**, Two Blades, Etched, 3⅛ in., Brass Lined	15.00

		Per dozen
No. C258S.	**Stag Handle**, Two Blades, 3⅛ in., Brass Lined	$7.80

		Per dozen
No. C281P.	**Pearl Handle**, Two Blades, 3⅛ in., German Silver Lined	$12.00

All above, half dozen in a box

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CAPITOL CUTLERY CO.'S.

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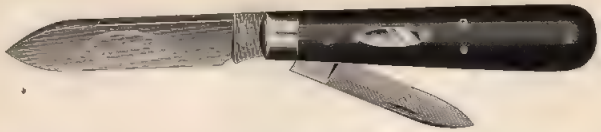
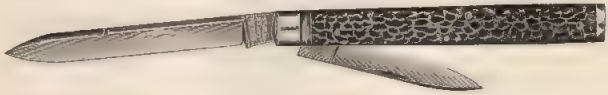
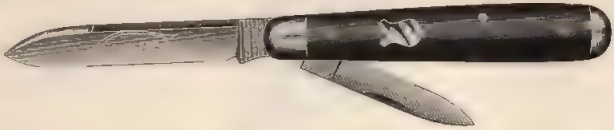


		Per dozen
No. C266E.	**Ebony Handle**, Two Blades, Etched, 3¼ in., Iron Lined	$3.60
No. C266R.	**Rosewood Handle**, Two Blades, Etched, 3¼ in., Iron Lined	3.60

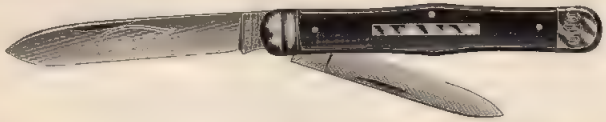
		Per dozen
No. C268E.	**Ebony Handle**, Two Blades, Etched, 3¼ in., Iron Lined	$3.60
No. C268R.	**Rosewood Handle**, Two Blades, Etched, 3¼ in., Iron Lined	3.60



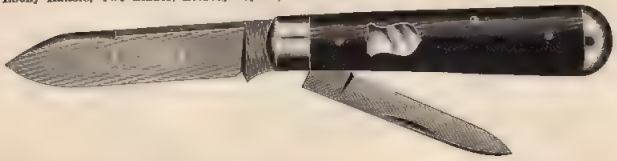
		Per dozen
No. C22S.	**Stag Handle**, Two Blades, Etched, 3¼ in., Brass Lined	$10.20
No. C22E.	**Ebony Handle**, Two Blades, Etched, 3¼ in., Brass Lined	9.00
No. C22P.	**Pearl Handle**, Two Blades, Etched, 3¼ in., Brass Lined	18.00



		Per dozen
No. C2028E.	**Ebony Handle**, Two Blades, Etched, 3¼ in., Brass Lined	$7.80



		Per dozen
No. C2076E.	**Ebony Handle**, Two Blades, Etched, 3¼ in., Brass Lined	$10 20



		Per dozen
No. C208E.	**Ebony Handle**, Two Blades, Etched, 3¼ in., Brass Lined	$7.20
No. C208C.	**Cocobolo Handle**, Two Blades, Etched, 3¼ in., Brass Lined	7.20

All above, half dozen in a box.

POCKET KNIVES.

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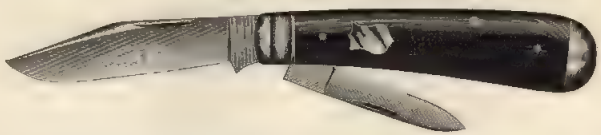


		Per dozen
No. C2088E.	**Ebony Handle**, Two Blades, Etched, 3¼ in., Brass Lined	$6.00
No. C2088S.	**Stag Handle**, Two Blades, Etched, 3¼ in., Brass Lined	7.80

		Per dozen
No. C202H.	**Horn Handle**, Two Blades, Etched, 3¼ in., Brass Lined	$7.80
No. C202E.	**Ebony Handle**, Two Blades, Etched, 3¼ in., Brass Lined	7.20
No. C202C.	**Cocobolo Handle**, Two Blades, Etched, 3¼ in., Brass Lined	7.20
No. C202S.	**Stag Handle**, Two Blades, Etched, 3¼ in., Brass Lined	7.80
No. C202B.	**Bone Handle**, Two Blades, Etched, 3¼ in., Brass Lined	7.80
No. C202GS.	**Genuine Stag Handle**, Two Blades, Etched, 3¼ in., Brass Lined	9.00

		Per dozen
No. C2002C.	**Cocobolo Handle**, Two Blades, 3¼ in., Brass Lined	$7.80

		Per dozen
No. C21C.	**Cocobolo Handle**, Two Blades, Etched, 3¼ in Brass Lined	$7.20
No. C21H.	**Horn Handle**, Two Blades, Etched, 3¼ in., Brass Lined	7.80
No. C21E.	**Ebony Handle**, Two Blades, Etched, 3¼ in., Brass Lined	7.20

		Per dozen
No. C221C.	**Cocobolo Handle**, Two Blades, Etched, 3¼ in., Brass Lined	$ 7.80
No. C221H.	**Horn Handle**, Two Blades, Etched, 3¼ in., Brass Lined	9.00
No. C221S.	**Stag Handle**, Two Blades, Etched, 3¼ in., Brass Lined	9.00
No. C221P.	**Pearl Handle**, Two Blades, Etched, 3¼ in., Brass Lined	18.00
No. C221AI.	**Antique Ivory Handle**, Two Blades, 3¼ in., Brass Lined, no Bolsters	9.00

All above, half dozen in a box.

POCKET KNIVES.

CAPITOL CUTLERY CO.'S.

POCKET KNIVES and **CUTLERY** bearing the name **CAPITOL CUTLERY CO.** are **AMERICAN MADE** and as near **PERFECTION** as science, skilled labor, and fifty four years of experience makes it possible to produce. They are **HAND FORGED** and **HARDENED** and **TEMPERED** individually. Made from S. & C. Wardlow's extra refined English Steel and **FULLY GUARANTEED.**

Per dozen

No. **C25E. Ebony Handle**, Two Blades, Etched, 3¼ in., Brass Lined $6.00

Per dozen

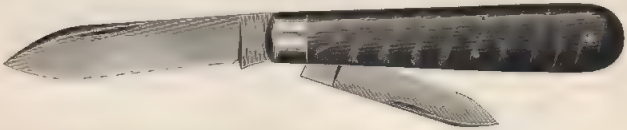
No. **C208S. Stag Handle**, Two Blades, Etched, 3¼ in., Brass Lined $7.80

Per dozen

No. **C263S. Stag Handle**, Two Blades, 3¼ in., Brass Lined $9.00

Per dozen

No. **C261P. Pearl Handle**, Two Blades, Etched, 3¼ in., Brass Lined $18.00
No. **C201GS. Genuine Stag Handle**, Two Blades, Etched, 3¼ in., Brass Lined 9.00
No. **C301P. Pearl Handle**, Three Blades, Etched, 3¼ in., Brass Lined 24.00



Per dozen

No. **C220R. Rosewood Handle**, Two Blades, Etched, 3⅜ in., Iron Lined $3.60

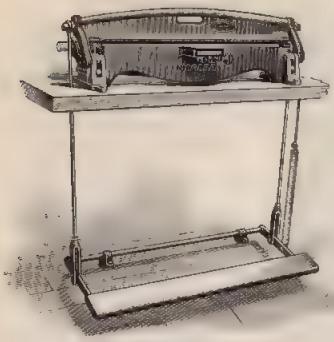
Per dozen

No. **C218R. Rosewood Handle**, Two Blades, Etched, 3⅜ in., Iron Lined $3.60

All above, half dozen in a box.

TINNERS' TOOLS.

KEYSTONE BAR FOLDERS.



With Square Body and Pipe Attachment.

The attachment makes the folder suitable for square and oblong can bodies, pipe, etc. Not less than 3x6 in. with sharp or slightly rounded corners; when used for regular work the attachment can be swung downward after disconnecting the treadle rods

	Each
21 in., Weight 150 lbs.	$40.00
30 in., Weight 270 lbs	50 00
36 in., Weight 320 lbs.	75 00

WRIGHT'S FOLDER WITH FAIRCHILD'S ATTACHMENT.

Capacity, No. 24 Iron.

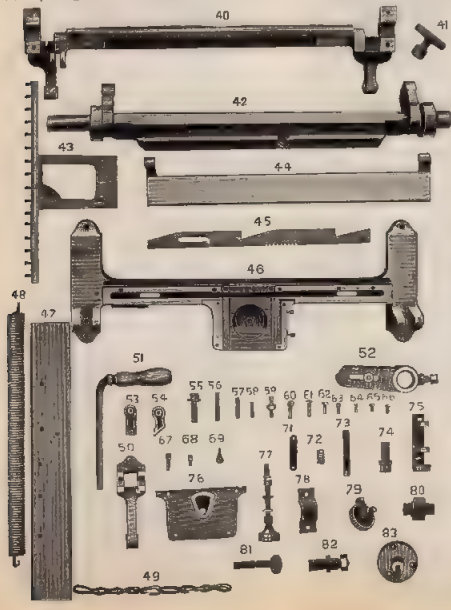
Particularly intended for folding the edges of sheets already formed in cylindrical shape by means of rolls, and will also fold straight sheets. **The Fairchild's Attachment** gives the advantage that an edge can be turned on sheets of any length.

Wright's Folders Only.

Width of locks. $\frac{3}{8}$ to $\frac{1}{2}$ in.	Each
30 in., Weight 75 lbs	$12.00
42 in., Weight 110 lbs	20.00
62 in., Weight 185 lbs	46 00

Wright's Folder With Fairchild's Attachment.

Width of locks, $\frac{3}{8}$, $\frac{7}{16}$, $\frac{1}{2}$ and $\frac{5}{8}$ in.	Each
30 in., Weight 80 lbs	$15.00
42 in., Weight 120 lbs	24.00
62 in., Weight 200 lbs	50 00



PARTS FOR KEYSTONE BAR FOLDERS.

Inches	17 & 20	30 & 36	42
No. 40. Jaw	$4.00	6.00	12.00
No. 42. Bar	4.00	5.00	10.00
No. 43. Gauge Slide	.75	.75	1.00
No. 43. Gauge	2.75	3.00	6.00
No. 44. Wing for Bar	3.00	4.00	8.00
No. 46. Frame	6.00	7.00	15.00
No. 47. Blade	4.00	5.00	12.00

For Sizes 17 to 42 Inches

No. 41.	Wrench	$0 10
No. 45.	Wedge	.50
No. 50.	Shoe	.50
No. 51.	Handle	.40
No. 53.	Square Stop	.15
No. 54.	Bevel Stop	.15
No. 55.	Square Head Wedge Screw	.10
No. 56.	Frame Pin	.10
No. 57.	Wing Pin	.10
No. 58.	Stop Pin	.10
No. 59.	Shoe Set Screw	.10
No. 60.	Cap Screw	.10
No. 61.	Blade Screw	.10
No. 62.	Wedge Screw, Round Head	.10
No. 63.	Gib Set Screw	.10
No. 64.	Gauge Plate Screw	.10
No. 65.	Worm Support Screw	.10
No. 66.	Index Finger Screw	.10
No. 67.	Handle Set Screw	.10
No. 68.	Worm Support Set Screw	.10
No. 69.	Index Finger	25
No. 71.	Link	.25
No. 72.	Gauge Springs, per pair	10
No. 73.	Gib	.25
No. 74.	Wedge Rack Pinion	50
No. 75.	Worm Support	50
No. 76.	Cap Plate	50
No. 77.	Worm Screw	1 50
No. 78.	Cap	.25
No. 79.	Worm Wheel	1 25
No. 80.	Friction Roller	.25

ILLUSTRATIONS SHOWING THE DIFFERENT PARTS OF A SADDLE.

Showing a Stock Saddle with California Front Rig, each part numbered and the name of the part given in full

1. Head } Horn.
2. Neck }
2½ Fork.
3. Front Rigging (California style).
4. Seat, full.
5. Cantle (straight).
6. Jockey (one piece).
7. Front Jockey or Housing.
8. Rear Jockey or Housing.
9. Skirt.
10. Nigger Catcher, or Tie Strap Loop.
11. Stirrup Leather.
12. Sweat Leather or Fender.
13. Tie Straps.
14. Off Billets—strap to which girth is buckled on off side.
15. Skirt Lining.
16. Cinchas or Girths.
17. Stirrups, Turner, Laced
18. Girth Chafe and Housing
19. Flank Rigging.
20. Gullet.
21. Hobble or Connecting Strap.
22. Rosettes or Conchas.
23. Strings.
24 to 25. Length of Seat.

Showing the Stock Saddle, with what is called a Strap Front Rig, a Roll Cantle and Three-quarter Seat.

1. Strap, Front Rig.
2. Three-fourth Seat.
3. Drop Cantle.
4. Jockey (stitched on).

ILLUSTRATIONS SHOWING THE DIFFERENT PARTS OF A SADDLE.

Showing a Mosby Saddle. These Saddles are very popular in Kentucky and Tennessee. There are Several Styles of Saddles belonging to this class that you will find fully Illustrated and Described in our Catalog.

1. Seat.
2. Cantle
3. Thigh Puff.
4. Housing.
5. Knee Puff.
6. Stirrup Leather.
7. Skirt.

Showing a Side Saddle. Our Line of Side Saddles is very large, ranging in price from the cheapest to the very finest English Saddles

1. Horn
2. Leaping Horn.
3. Seat
4. Cantle.
5. Jockey.
6. Housing.
7. Skirt.
8. Stirrup Leather.
9. Stirrup with Tapadero.

SADDLES.

No. 360—Stock; Steel Fork Tree.....Each $250.00

Tie Strings as shown in Cut.

Packed Loose; Weight Each about 50 lbs.

DESCRIPTION.

TREE—No. 1216, Improved Portland; 16 inch Seat; Steel Fork Beef Hide Covered.

HORN—Covered, with Cap; Hand Stitched and Raised Stamped.

SKIRTS—16 inches Deep, 31 inches Long; Wool Lined; Full Hand Raised Stamped, with Hoods to Match; Two Rows Stitched.

CANTLE—Straight, Hand Stitched, Hand Raised Stamped both Front and Back; Raised Stamped Binding; Pocket on Back.

SEAT—Full; Jockey, Cantle and Seat in One Piece; Hand Raised Stamped Front and Jockey; Iron Strainer under Cover

FOREPIECE—Full Hand Raised, Stamped Layer; Raised Stamped Front; ⅝ inch Bucking Strap on Off Side Cinch Rigging running over Saddle under Forepiece.

DOUBLE RIG—Has Calfskin Lined Jockeys and Hoods.

STIRRUP STRAPS—3 inch; Full Hand Raised Stamped; Heavy Lined at Bottom; Made to Lace

FENDERS—11½ inches Wide, 20 inches Long; Buckskin Sewed to Stirrup Straps, Full Calfskin Lined and Raised Stamped.

GIRTH STRAPS—2½ inch; Fancy Stamped; To Buckle and Tie

OFF BILLETS—2½ inch; Raised Stamped; To Buckle.

CINCHAS—Front, 58 Strand, New Idea, Cotton; Flank, 4½ inch Leather Full Raised Stamped, with Covered Rings, Handsomely Housed and Connected.

STIRRUPS—Wood Ox Bow, Covered; Buckskin Laced; Hand Raised Stamped.

RINGS—Covered, Scalloped and Hand Stitched.

LEATHER—Russet Skirting, Fair or Oiled

No. 347—Stock; Steel Fork Tree.....Each $77.00

Full Nickel Cinchas and Tie Strings as shown in Cut.

Packed Loose; Weight Each about 38 lbs.

DESCRIPTION.

TREE—No. 1318; Worch; 16 inch Seat; Steel Fork; Beef Hide Covered.

HORN—Covered, with Cap; Hand Stitched.

SKIRTS—15 inches Deep, 30 inches Long; Wool Lined; Hand Raised Stamped Corners, with Border; Front and Back Hoods to Match.

CANTLE—Straight; Hand Stitched; Hand Raised Stamped.

SEAT—Full; Jockey, Cantle and Seat in One Piece; Fancy Stamped Front Border; Hand Raised Stamped Jockeys; Iron Strainer under Cover

FOREPIECE—Full Hand Raised Stamped, with Border Turned Front, with Bead; ⅝ inch Bucking Strap on Off Side, Cinch Rigging running over Saddle under Forepiece

DOUBLE RIG.

STIRRUP STRAPS—3 inch, Stamped Centers; Heavy Lined at Bottom; Made to Lace

FENDERS—11 inches Wide; 19 inches Long; Hand Riveted and sewed to Stirrup Straps; Hand Raised Stamped Bottom Corners.

GIRTH STRAPS—No. 232; 2 inch; To Buckle and Tie.

OFF BILLETS—No. 234, 2½ inch; To Buckle.

CINCHAS—No. 209; Front, 20 Strand; Flank; 18 Strand California White Angora Hair; Leather Housed and Connected.

STIRRUPS—No. 928, Metal, Stockman's; Leathered and Laced.

RINGS—Covered and Stitched.

LEATHER—Russet Skirting, Fair or Oiled.

SADDLES.

Each

No. 585—Stock; Steel Fork Tree..... $63 00

Tie Strings as shown in Cut.

Packed Loose; Weight Each about 20 lbs.

DESCRIPTION.

TREE—No. 1404, Harney; 14 inch Seat Steel Fork; Beef Hide Covered

HORN—Covered, with Cap; Hand Stitched.

SKIRTS—Round Corners, California Style; 18 inches Deep 27 inches Long, Wool Lined, Stamped Checkered Borde, with Front and Back Hoods to Match.

CANTLE—Straight; Hand Stitched, Raised Stamped

SEAT—Full; Jockeys, Cantle and Seat in One Piece; Front Border Fancy Stamped; Border Stamped, Border Stamped Jockeys; Iron Strainer under Cover.

FOREPIECE—Full Hand Raised Stamped; ⅝ inch Bucking Strap on Off Side.

SINGLE RIG—Western Style.

STIRRUP STRAPS—3 inch; Two Rows Stamped; Heavy Lined at Bottom; Made to Lace.

FENDERS—9½ inches Wide, 19 inches Long; Hand Riveted to Stirrup Straps; Checkered Stamped Border

GIRTH STRAP—2 inch Heavy Latigo Leather; To Tie.

CINCHAS—No. 175; 24 Strand California White Angora Hair.

STIRRUPS—No. 5B, Hardwood, Brass Bound; Leathered at Top and Bottom.

RINGS—Covered and Stitched.

LEATHER—Russet Skirting, Fair or Oiled.

Each

No. 343—Stock; Steel Fork Tree $63.00

Tie Strings as shown in Cut.

Packed Loose; Weight Each about 35 lbs.

DESCRIPTION.

TREE—No. 1013; Wild West; 16 inch Seat; Steel Fork; Beef Hide Covered.

HORN—Covered, with Cap; Hand Stitched.

SKIRTS—15 inches Deep, 30 inches Long; Wool Lined; Basket Corner Stamped, with Front and Back Hoods to Match

CANTLE—Straight; Hand Stitched; Basket Stamped.

SEAT—Full; Jockey, Cantle and Seat in One Piece; Front Border Fancy Stamped; Basket Stamped Jockeys, Iron Strainer under Cover

FOREPECE—Full Basket Stamped, with Bead; ⅝ inch Bucking Strap on Off Side; Cinch Rigging running over Saddle under Forepiece.

DOUBLE RIG—With Back Cinch Rigging running over Saddle, back of Cantle, in One Piece

STIRRUP STRAPS—3 inch; Fancy Stamped Center; Heavy Lined at Bottom; Made to Lace.

FENDERS—10¾ inches Wide, 19 inches Long; Hand Riveted and Sewed to Stirrup Straps; Basket Stamped Bottom Corners.

GIRTH STRAPS—No. 232; 1¾ inch; To Buckle and Tie.

OFF BILLETS—No. 234; 2½ inch; To Buckle.

CINCHAS—No. 209; Front, 20 Strand; Flank, 18 Strand California White Angora Hair; Leather Housed and Connected.

STIRRUPS—No 928; Metal, Stockman's; Leathered and Laced.

RINGS—Covered and Stitched.

LEATHER—Russet Skirting, Fair or Oiled

SADDLES.

Each

No. 342—Stock; Steel Fork Tree.....$61 00

Tie Strings as shown in Cut.

Packed Loose; Weight Each about 35 lbs.

DESCRIPTION.

TREE—No. 20[illegible] Ledesma; 16 inch Seat; Steel Fork; Beef Hide Covered

HORN—Covered with Cap, Hand Stitched

SKIRTS—[illegible] inches Deep, 20 inches Long; Wool Lined; Fair Finish.

CANTLE—Straight, Hand Stitched, Basket Stamped.

SEAT—Full, Jockey, Cantle and Seat in One Piece; Front Border Fancy Stamped; Iron Strainer under Cover.

FOREPIECE—Full Basket Stamped, with Fancy Border; ⅝ inch Buckling Strap on Off Side; Cinch Rigging running over Saddle under Forepiece.

DOUBLE RIG—With Back Cinch Rigging running over Saddle, back of Cantle, in One Piece

STIRRUP STRAPS—3 inch; Creased Edge; Heavy Lined at Bottom; Made to Lace.

FENDERS—10 inches Wide, 19 inches Long; Hand Riveted and Sewed to Stirrup Straps; Creased Border.

GIRTH STRAPS—No. 232; 2 inch; To Buckle and Tie.

OFF BILLETS—No. 234; 2¼ inch, To Buckle.

CINCHAS—No. 269; Front, 20 Strand; Flank, 18 Strand California White Angora Hair; Leather Housed and Connected

STIRRUPS—No. 928; Metal, Stockman's; Leathered and Laced.

RINGS—Covered and Stitched.

LEATHER—Russet Skirting, Fair or Oiled.

Each

No. 339½—Stock; Steel Fork Tree.....$57.00

Tie Strings as shown in Cut.

Packed Loose; Weight Each about 33 lbs.

DESCRIPTION.

TREE—No. 1548; Improved Red Cloud; 15½ inch Seat; Steel Fork, Hog Skin Covered

HORN—Covered, with Cap, Hand Stitched.

SKIRTS—14 inches Deep, 20 inches Long; Wool Lined; Heavy Checker Stamped Border, with Front and Back Hood to Match.

CANTLE—Straight; Hand Stitched; Hand Raised Stamped.

SEAT—Full; Jockey, Cantle and Seat in One Piece; Front Border Fancy Stamped; Iron Strainer under Cover.

FOREPIECE—Full Hand Raised Stamped, with Bead; ⅝ inch Tie String on Off Side; Cinch Rigging running over Saddle under Forepiece.

DOUBLE RIG—With Back Cinch Rigging running over Saddle, back of Cantle, in One Piece.

STIRRUP STRAPS—3 inch, with Two Rows Checker Stamping; Heavy Lined at Bottom; Made to Lace.

FENDERS—9½ inches Wide, 17½ inches Long, Hand Riveted to Stirrup Straps, Heavy Checker Stamped Border.

GIRTH STRAPS—No. 232; 1¾ inch; To Buckle and Tie

OFF BILLETS—No. 234; 2 inch; To Buckle

CINCHAS—No. 174; Front, 20 Strand White Angora Hair, Flank, No. 173 18, Strand California White Angora Hair, with Tongues.

STIRRUPS—No. 887; Metal, Stockman's, A. C. Plate (Tinned).

RINGS—Covered and Stitched.

LEATHER—Russet Skirting, Fair or Oiled.

RIDING SADDLES.

✦ ✦ ✦

WE HAVE MADE every effort to bring our Saddles to the high point of perfection claimed for them.

IN THE CONSTRUCTION of all our medium and high-grade Stock saddles, we use the best California russet color skirting leather of the proper weight to make them substantial, and the workmanship is the product of the best mechanics.

WE MANUFACTURE them in all grades, from the reliable every day sort to the most elaborate up-to-date style of pure Western type.

THEY ARE BUILT on trees of superior form and strength which are Kip, Hog or Beef hide covered.

OUR LINE of Somersets, Spring Seats, Mosbys and McClellans are all the latest patterns and of exceedingly good values.

OUR SIDES and Cow Girl Saddles are of a variety that are called for, and are in use in all localities.

ALL PATTERNS are full size according to their grade.

GAMES Continued

No. Per doz.
702 Twentieth Century Fun Box, six good games, Baseball, Naval Battle, Putting on the Lid, Amerd, Cupidity, Cribbler, mounted separately, box 9x18, maroon and white, contains dice, shakers, counters, etc. $14 40

No. Per doz.
704 World's Champion Base Ball Game, beautiful five color label on box 9x18, containing 18 men, two shakers, 4 dice, ½ dozen in package $7 20

No. Per doz.
707 "Banzai," Japan game with 80 embossed letters, handsome box 9x8 in 4 colors, all players draw at same time forming words as rapidly as possible, stopping instantly when last letter is drawn $4 00

THE POPULAR GAME HALMA

THE POPULAR GAME HALMA

No. Per doz.
715 Halma Popular edition $16 00
716 " Fine " 33 60

TEN PINS

No. Per doz.
638 Little Ten Pins, 1 dozen in package. $8 80
1041 Athletic sets 80
1042 Tom Thumb Ten Pins 60
572 Twenty-five Soldiers on Parade, this game contains 25 cut-out soldiers [illegible] kinds, all printed in full colors and gold, size 1½x9, ½ dozen in package 4 00
661 Soldier Ten Pins, this set contains 9 soldiers and an officer, and a harmless spring gun with wooden shells, the labels are in full colors, and gold and varnished, size 7½x9, ½ dozen in package 4 00

No. 568½

No. Per doz.
568 Soldiers, Infantry, squads of infantry in bright uniforms, mounted on blocks ready to stand up, size 13½x20 . . . . . $5 50
568½ Soldiers, Cavalry, a company of cavalry on their horses, each figure on blocks ready to stand up, size 13½x20 . . . . . 5 50

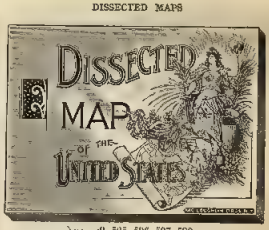
No. Per doz.
7700 Alice in Wonderland Ten Pins, large character pins taken from the famous book, full lithographic colors $16 00

No. Per doz.
1034 Hardwood Polished Ten Pins, same shape as those in bowling alleys, 7 inch, in strong box $4 00
1035 Same as above, 9 inch, in strong box . . 8 00
1036 " " 12 " " 16 00

No. Per doz.
7799 Cats on the Wall, novelty, quarreling cats to be knocked off, harmless balls are provided, full lithographed colors, size 13x23½ inches. $24 00

No. Per doz.
7791 Four and Twenty Blackbirds, size 19x21 inches, 24 blackbirds placed in a slot to make a realistic representation of the famous pie, full lithographed colors $24 00

DISSECTED MAPS



Nos. 590, 595, 596, 597, 599

No. Per doz.
917 Dissected map of the United States, size 10x11½ inches, cut from heavy cardboard $1 50
159 A fine new map, new cut in squares, Dissected Soldiers, ½ dozen in package 4 00
596 New dissected map of the United States, size 8x11, ½ dozen in package 4 00
597 New dissected map of the United States, size 8x12, ½ dozen in package 8 00
599 Dissected map of the world, size 16x22, each in package 12 00

No. 918

No. Per doz.
918 Dissected map, cut out on state lines in wood $8 00
235 " " Illinois, cut on county lines 8 00
236 " " Ohio, " " " " 8 00
160 " " U. S., extra fine edition 16 00

PARCHESI

No. Per doz.
825 Popular edition, mounted on durable and handsome black paper imitation leather with scarlet labels printed in best gold bronze, a box containing 6 dice, 16 drawing and counters, 4 dice cups, and directions, accompany the board $13 20
825½ Extra sets of men for Parchesi 8 40
826 Fine edition, bone counters 36 00

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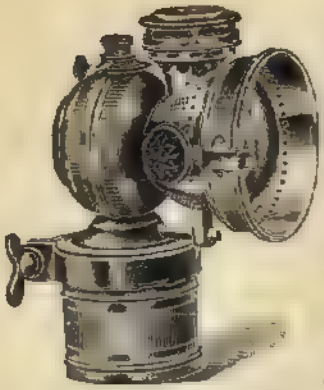
No. Per doz.
1019 Chessindia, bright colored board box, played in box, size 15 x11½ x½, boxes in package $4 00
1020 Chessindia, on folding board box, complete, printed in bright colors size 8½x17 ½, dozen in package 5 60
1021 Chessindia, folding board, book form, chessmen in a separate box, size 18¾x8¾. 8 00



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Cycle & Motor Cycle Lights

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AUTOMOBILES

Better See and Learn Prices Before Placing Order

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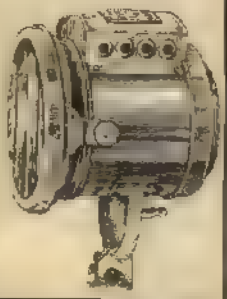

Cork Insert

(Patented)

Clutches and Brakes

are manufactured by these makers of Automobile Parts:

Muncie Auto Parts Co., Muncie, Ind.
Leather Faced Cone with Cork Inserts
Bronze Faced Cone with the Cork Inserts

The "Long Arm" System Co., Cleveland, O.
Leather Faced Cone with Cork Inserts

General Mfg. Co., Elkhart, Ind.
Leather Faced Cone with Cork Inserts

Verstraete-Fyfe Mfg. Co., Burlington, Wis.
Three or Five Plate Disc Clutches and Leather Faced Cone with Cork Inserts

Continental Motor Mfg. Co., Muskegon, Mich.
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Northway Motor & Mfg. Co., Detroit, Mich.
Three or Five Plate Disc Clutches and Leather Faced Cone with Cork Inserts

Milwaukee Motor Co., Milwaukee, Wis.
Three or Five Plate Disc Clutches and Leather Faced Cone with Cork Inserts

The National Brake and Clutch Co. does not manufacture Clutches or Brakes, limiting its business to the licensing of Automobile Manufacturers or Automobile Parts Manufacturers to equip their devices with Cork Inserts.

Clutches and Brakes will, however, be designed for Automobile Manufacturers or Parts Manufactured by the

National Brake & Clutch Co.

16 State Street, Boston

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What a benefit compressed air is to your tires and your pocket book. The life of your tires is considerably increased by always having the proper pressure.

Every up-to-date garage should have compressed air on tap.

Send for booklet and prices on complete apparatus, both motor and belt driven.

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"PLATA" WHITE BRASS

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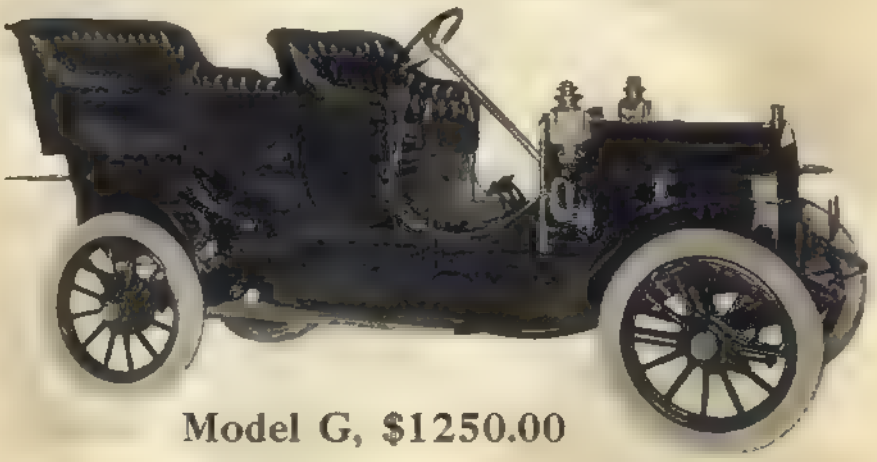
THE MOST FOR THE MONEY

THE AUBURN



Model G, $1250.00

1909 1909

For eight years we have been building strictly high-class cars. During that time cars have come and gone by the score, yet the position of the ***Auburn*** is stronger to-day than ever before.

EFFICIENCY IS WHAT COUNTS

We would like to have you compare the ***Auburn*** with any car in the market at within $500.00 of the price.

This car is made to sell at $1250.00 and it is worth every cent it costs. If you will give the car a chance it will speak for itself. It is powerful; has plenty of room, the ideal family car.

SPECIFICATIONS:

MOTOR. 5½ x 5. Double opposed. 24 H. P.

TRANSMISSION Planetary, two speeds forward and one reverse.

WHEEL BASE. 100 inches.

TIRES. 32 x 3½ inches.

AXLES. Front, ball bearing, rear, Hyatt roller bearing.

BODY. Side entrance; five passenger.

1909 PRODUCT--SIX DISTINCT MODELS

Write for Particulars

AUBURN AUTOMOBILE COMPANY

Auburn, Indiana

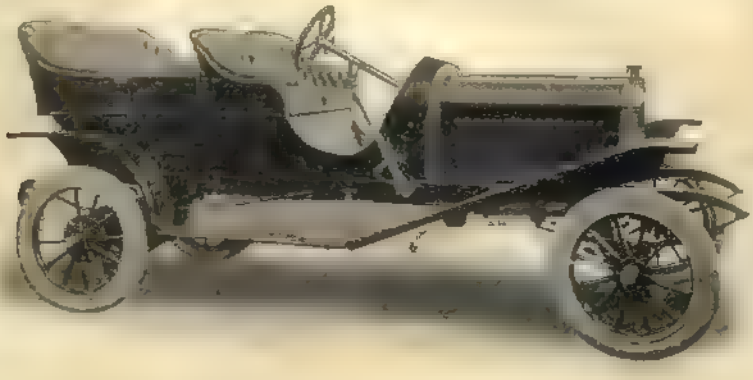
THE 1909 LINE OF LAMBERT

FRICTION-DRIVE CARS

Offers Big Possibilities to Progressive Agents

The line will include six different cars, ranging from an $800.00 runabout to a **$2000.00 7 passenger touring car.**

Every one of these cars is an extremely attractive proposition in its class and even without the friction drive transmission (which is universally regarded as the **ideal** transmission) would compare favorably in every particular—design, workmanship, and finish, with other cars having the complicated and costly gear transmission.



THE LAMBERT 30

The Lambert 30, illustrated above, is unquestionably one of the biggest values in $1250 00 cars that will be offered in 1909 Here are a few of the specifications.

Capacity: 5 passenger.

Horse Power: 28.

Motor: 4 cylinder Rutenber

Speed 1 45 miles.

Wheels: 30 inches.

Wheel Base: 110½ inches

Drive: Single, silent chain, enclosed in dust-tight, metal case.

Tires: 30" x 3½".

Detachable tonneau.

Weight: 1600 lbs.

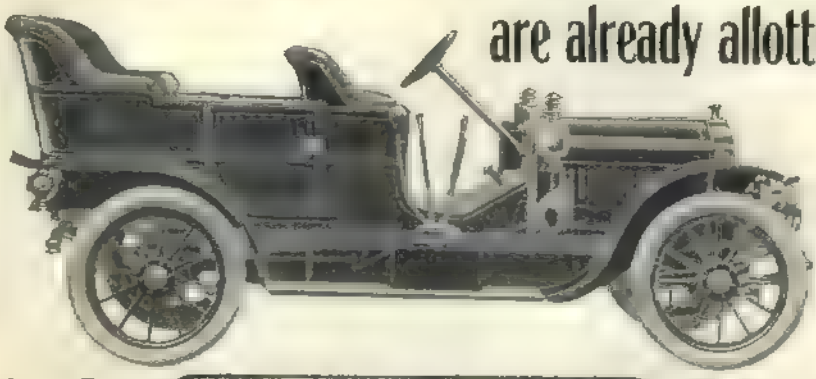
Paint Body, deep red, light red stripe on panel; black molding; running gear, light red, striped with English Vermilion Special color on proper notice.

Equipment. 2 gas lamps and generator; tail lamp; 2 oil side lamps; 40 inch flexible tube horn and full tool equipment.

Price: $1250.00, f. o. b. factory.

"The only way to prevent a customer from buying a Lambert is to prevent him from having a Lambert demonstration."

Why all the Elmore Cars we can build for 1909 are already allotted



19 Elmore 09

VALVELESS 2 CYCLE

Three Cylinder $1750

Four Cylinder $2500

It is strange how hard it is to express a simple truth when that truth runs counter to what most men believe.

For instance—a majority of men who own automobiles own four-cycle automobiles, because the majority of manufacturers tell them to buy them.

They buy four-cycle cars believing the four-cycle principle to be correct—and the only reason they hold such a [illegible] mistaken belief is that they have never had the chance to learn the contrary by comparing it with the valveless two-cycle.

So, when we tell these men the simple truth—that the four-cycle principle is inherently vicious—they are amazed and incredulous.

When we go further and tell them that no car, no matter what its price, which incorporates the two great four-cycle errors (intermittent torque and valves) can possibly compare in operative smoothness or economy with the Elmore—they are astounded at our temerity.

Yet this is the truth, and every Elmore owner—a little army of some three thousand enthusiastic souls—knows and testifies to it.

And it is also the truth that the sale of Elmore cars increases in precisely the same ratio as the number of people who investigate its valveless two-cycle engine.

Not only that, but every man who buys a four-cycle car, even tho' he never saw an Elmore, is just this close to buying an Elmore: He would buy one in preference to the finest four cycle car manufactured—if he investigated.

That's a sweeping statement—but it will stand analysis because it is borne out by the facts.

For four successive years now we have increased our capacity and each successive year it has been immediately absorbed.

For four years Elmore dealers have insistently cried for more cars; and Elmore agencies have come to be considered one of the most valuable assets in the automobile business, because:—

The twin virtues of Elmore construction—continuous flow of power and complete elimination of valves—will sell the Elmore to a prospective buyer against any argument or demonstration any four-cycle car can give.

The difference between the valveless two-cycle Elmore and any four-cycle car is so marked and radical that it affects the comfort, mental and physical, of every moment spent in riding—so easily demonstrated that a half hour's time is usually sufficient for complete conversion.

Everything your car does—the way it rides every day, the troubles it does or does not give, and the money it costs for upkeep—is involved in this difference between the Elmore and other cars.

You are not an Elmore owner merely because you do not know this difference. Some day it will be made plain to you—and then you will be amazed that you were kept so long in the dark.

We cite these facts largely out of consideration for our dealers. Their output, like ours, is absorbed with amazing rapidity every year; but it is a duty we owe them and ourselves to facilitate the widest possible understanding of the valveless two-cycle Elmore.

The 1909 literature is ready.

The Elmore Mfg. Co., 904 Amanda Street, CLYDE, OHIO

Member Association of Licensed Automobile Manufacturers

Exhibiting in New York City at the Madison Square Garden Show, Jan 16 to 23, 1909

McIntyre

LINE OF HIGH WHEEL

Motor Vehicles

TEN NEW 1909 MODELS

Air cooled, four-cycle, planetary transmission, two speeds forward, one reserve. Solid rubber tires, Mechanical oiler. Wheel steer.

Two-cylinder, double opposed, offset type, chain drive, 12-14, 16-18 H. P.

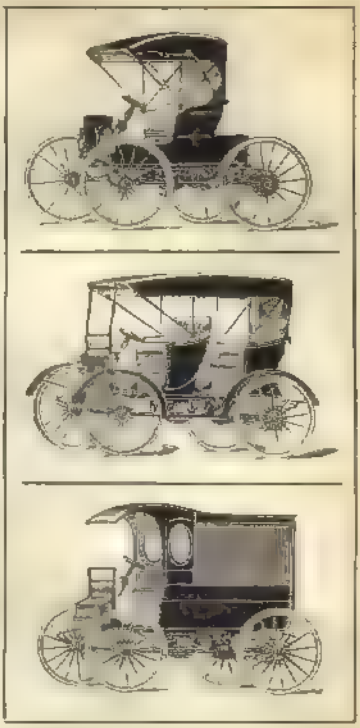
Four-cylinder, shaft drive, 28-32 H. P.

One, two, three seated Pleasure Vehicles and full line of Commercial Wagons.

Visit our exhibit, New York and Chicago Shows
Write for Catalog No. 46

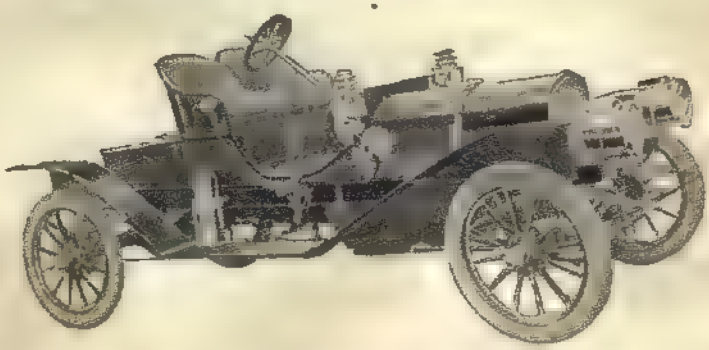
W. H. McINTYRE CO. (*Successor to W. H. Kiblinger Co.*)
AUBURN, INDIANA

256 Broadway, NEW YORK — 1730 Grand Ave., KANSAS CITY — Tudhope-McIntyre Co., ORILLIA, CANADA



MIDDLEBY

$850.00 RUNABOUT



Four cylinder, four cycle, 4" bore and stroke, air cooled, three speeds forward and one reverse, slide gear transmission, shaft drive, 108" wheel base, 30 x 3½ inch tires, complete with two gas lamps and generator, two side oil lamps and one rear lamp, French horn, tube and tools.

Agents write for territory and catalogue

MIDDLEBY AUTO COMPANY, Reading, Pa.

DECARBONIZER

The Great

Carbon Remover

Removes **CARBON** from all parts of engine 100 000 **USERS** recommend it.

The only compound, **GUARANTEED HARMLESS.** $1,000 Dollars **REWARD** if it can be shown that **DECARBONIZER** is **INJURIOUS** Try a quart can at $1 50 and note increased power of engine.

CENTER-FIRE

Spark Plug

With this Plug Combustion is Instantaneous and Complete.
10 per cent. **POWER** Increase **GUARANTEED.**
Samples $1.00, Six for $5.00. Regular price $1.50 discount to the trade. Fully Guaranteed.

General Accumulator & Battery Co.
120 Second St., Milwaukee, Wis.

NEW and SECOND HAND

AUTOMOBILES

(THE MOST POPULAR MAKES)
AT

CUT PRICES

SEND FOR LIST OF CARS ON HAND

OUR 100 PAGE CATALOGUE ON **SUPPLIES**

FULLY ILLUSTRATED, WILL BE OF GREAT VALUE TO YOU. SENT PROMPTLY ON REQUEST

MAY WE SEND YOU OUR PRICE LIST ON **TIRES and INNER TUBES, also**

Stepney Spare Wheels at $13.50

A COMPARISON OF PRICES WILL BE OF GREAT IMPORTANCE TO YOU

TIMES SQUARE AUTO CO.

Largest Dealers in the World in New and Second Hand Cars

1599-1601 Broadway, New York City
1333-1334 Michigan Ave., Chicago, Ill.

RUBBER GOGGLES

IN LARGE VARIETY

Cover Rubber Goggles

Patented July 30th, 1907
June 16th, 1908

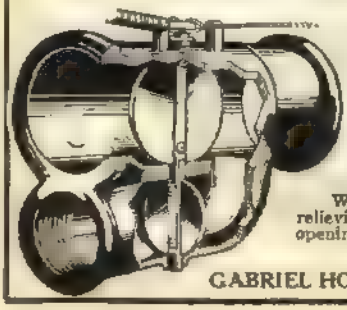
Beware of Rubber Goggles not protected by COVER patents

FOR SALE BY ALL JOBBERS

SUSSFELD, LORSCH & COMPANY
37 and 39 MAIDEN LANE, NEW YORK

PLEASE!

THE SWEET MUSICAL NOTE OF A



1909 GABRIEL HORN

is like a polite request, not a shrill demand.

Its rich mellow tone warns without frightening. An ingenious device attached to new model permits its three-note tone used for city purposes to rise in unison as a penetrating warning for country roads. The Gabriel Horn is used exclusively on the personal cars of European Rulers.

New 1909 GABRIEL HORN and CUT-OUT VALVE

When used for Cut-out purposes, remove disc in main channel, thereby relieving any back pressure caused by the muffler through the additional opening of 1½ inches. Made to fit exhaust pipes from 1 to 2½ inches.

Write for catalog and terms

GABRIEL HORN MFG. CO., 1412 East 40th St., CLEVELAND, OHIO

The New Eclipse Coaster Brake

is a worthy descendent of its famous predecessor—the Morrow, although it has been improved and perfected to meet existing conditions.

It has been greatly simplified—the ECLIPSE having only eight parts, as against thirty in some other makes. This simplification has reduced the size and weight, the new model weighing but 27 ounces. The ECLIPSE has no springs, no weak parts, no lost motion, no engaging teeth, no back lash and no drag. It is the ideal coaster brake, being strong, powerful and dependable. Don't fail to equip your new bicycles and motorcycles with the ECLIPSE COASTER BRAKE. By so doing you will win the gratitude and favor of your customers. *Write for prices.*

The ECLIPSE MACHINE COMPANY, Elmira, N.Y.

G & J

Bicycle

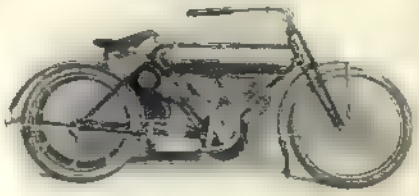
Tires

It pays to make Indianapolis G & J Bicycle Tires your standard line, because they are the highest quality, have the largest demand and always give your customers absolute satisfaction.

G & J Tire Co.

Indianapolis, Ind.

Send for Catalogue and Prices



M-M

6 H.P. Twin for 1909

In purchasing a Twin-Cylinder Motorcycle of course you expect power and speed.

But don't you also want comfort, together with that delightful feeling of stability, born of the knowledge that you have complete control of your machine, whether riding five or sixty-five miles per hour.

M. M. the Twin with the 90 degree cylinder angle.

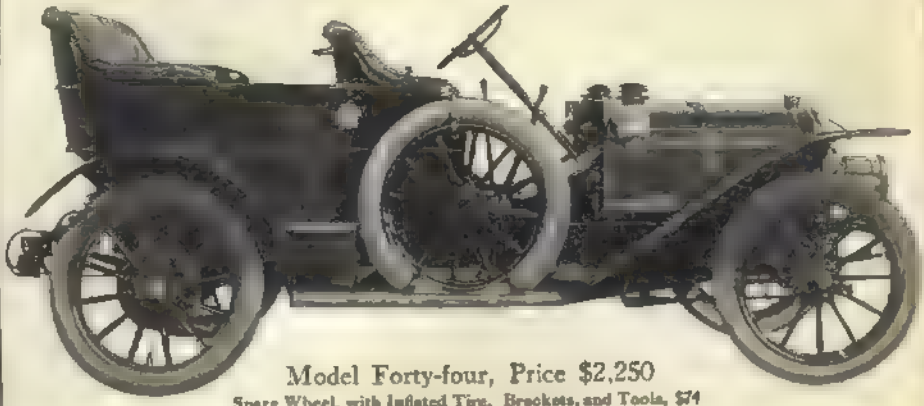
"LET US TELL YOU WHY"

DEALERS WANTED — GOOD TERRITORY

American Motor Company

715 Centre St. - - BROCKTON, MASS.

Rambler ~1909



Model Forty-four, Price $2,250

Spare Wheel, with Inflated Tire, Brackets, and Tools, $74

The Offset Crank-Shaft

MOST automobiles develop sufficient power when they are traveling at a high speed. The greatest need is for power at slow engine speeds. Rambler Model Forty-four can be operated smoothly and steadily at three miles an hour on high gear. This is because of the offset crank-shaft.

Equivalent to position in ordinary engine of piston at explosion center. Illustrates energy wasted to overcome dead center.

Equivalent to position in Rambler engine of piston at explosion center. No energy wasted. Full power of explosion exerts turning effort to crank-shaft.

Ordinary engine. Crank-shaft in line with connecting-rod, creating a dead center.

Rambler offset crank-shaft. Dead center eliminated.

How the Offset Crank-Shaft is an Advantage

Write for special information regarding the Rambler Spare Wheel, the offset crank-shaft, and other special Rambler features.

THE CAR OF STEADY SERVICE

Thomas B. Jeffery & Company. *Main Office and Factory: Kenosha, Wisconsin*

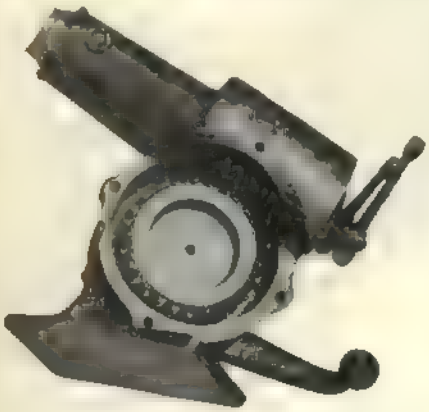
Branches and Distributing Agencies: Chicago, Milwaukee, Boston, New York, San Francisco

Representatives in all Leading Cities

THE "BULTMAN" MODEL R STEERING GEAR

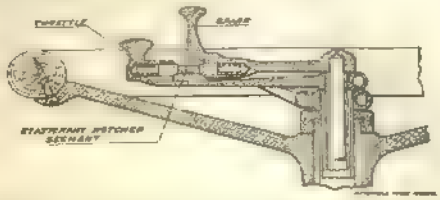
The Bultman Model R Steering Gear is manufactured by the F. H. Bultman Co., Cleveland, Ohio, and is designed for use on light touring cars, runabouts and auto buggies, up to 1600 pounds weight.

It is of the worm and gear type, a full gear being used. Both are of hardened steel with ground bearings. The standard ratio of worm to gear is seven to one, which gives one and one-half turns of the



The "Bultman" Model R Steering Gear, interior view.

wheel for a full throw in both directions. This latter ratio can be varied by the use of different length levers, or a greater or less gear ratio will be furnished if desired. The worm and gear are fully adjustable for lost motion. Further than this, should one portion of the gear become too greatly worn the lever can be removed from the square shaft end and replaced after the gear has been given a quarter turn, bringing into use an entirely new section of the worm gear. The worm shaft is electrically welded to a one-



Sectional view of the "Bultman" steering wheel and control

inch diameter column tube. The worm gear is of one piece with the shaft, running in a bronze eccentric bushing. The worm and gear run in an enclosed malleable iron case. This case is cast with a 2 in. x 6 in. plate for attaching to the inside of the side frame of chassis. This tilts the column at an angle of fifty-five degrees with the frame and brings the ball lever in the right place for cross-wise steering. If a special attaching plate for cross-wise or straight-ahead steering is desired, the makers will be pleased to quote on same upon receipt of specifications.

The steering column is enclosed by a stationary 1⅝-in. diameter polished brass tube. The wheel is made up of a 14-inch oval wood rim finished as desired and mounted on a Japanned spider. The spark and throttle-control levers and quadrant are of polished yellow brass and located on top of the wheel. The quadrant is stationary. The lower ends of the control tubes are fitted with 2½-inch long clamp hub levers. A Billings & Spencer drop forged steering lever, 5¼ inches long with 1-inch ball, is furnished with each gear. The list price of the gear is $19.

IMPROVED "B & S" ADJUSTABLE "S" PIPE WRENCH

This wrench is a new product of the Billings & Spencer Company, 216 Lawrence street, Hartford, Conn., and in general design it follows the lines of their regular adjustable "S" wrench, but has a serrated jaw for use on pipe. Every part is a drop forging from steel and the jaws are hardened. The sliding jaw is fitted in

The New "B. & S." Adjustable "S" Pipe Wrench.

a double groove, which greatly adds to the strength of the tool. The patent thumb screw on the adjusting knurl securely locks the jaw at any desired opening.

The wrench is made in three sizes, 6-inch, 8-inch and 10-inch and its design is such as to make it very useful in confined places where an ordinary wrench would be inconvenient.

To the Ajax-Grieb Rubber Company has been awarded what is claimed to be the largest order for tires ever given in the history of the automobile industry. It provides for 29,000 tires, costing over half a million dollars, to be delivered before July 1, 1909, to the Maxwell-Briscoe Motor Company, whose factories are at Tarrytown, N. Y., Newcastle, Ind., and Pawtucket, R. I. These tires, numbering 7,250 sets, are to be used as standard equipment on the Maxwell line for next year.

Morris R. Machol, 16 Beaver St., N. Y. City, who is marketing an aluminum alloy called "Magnalium," described in our August, 1908, issue, page 126, advises us that this metal is meeting with much favor in the automobile trade, and that among the concerns which recently began to use it is the Fairfield Aluminum Foundry Corp., of Fairfield, Conn., who report having met with much success in its use, as castings made from this metal are easily machined and take a very high finish.

AMERICAN "JUNIOR" GANG EDGER

For mills cutting up to 20,000 feet per day we can recommend the single roll machine, while for heavier work and greater capacity we recommend the double roll machine.

These machines are very little power to copy but little floor space and being constructed of the best material, are guaranteed in every respect. The saws are quickly and easily adjusted by an improved lever device with a scale directly over the saws and in plain view of the operator, insuring accurate setting and perfect lumber.

All the working parts are carried by the central section, which is a substantial self-contained iron husk frame, entirely independent of the extension tables.

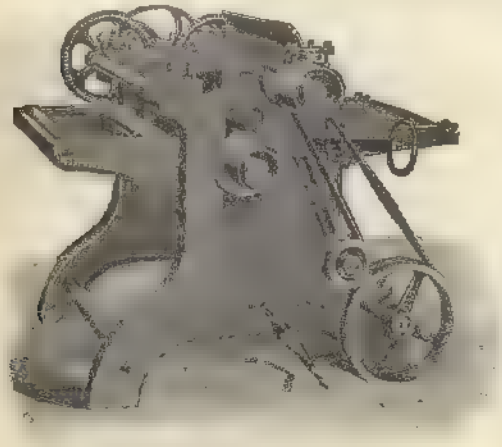
The feed rolls are fluted, corrugated and grooved, so as to insure positive feed without defacing the lumber. They are provided with ample and convenient adjustment.

The saw guide is fitted with a new eccentric adjustment insuring easy and rapid setting, and giving a great range of work.

SPECIFICATIONS

Table rolls of cold rolled steel with [illegible] bearings.
Steel mandrel, 1 15/16-inches, with babbitted boxes.
Driving pulley [illegible] diameter 8-inch face, speed about 1,5[illegible] revolutions per minute.
Feed pulleys, 18x4 inches.
Driven feed roll [illegible] 3-inch diameter. Pressure rolls, 5 1/2 inches diameter.
Saws, [illegible] with 4-inch hole.
Extreme length and width, 18 feet 3 inches by 47 inches.
Extreme width between guides 33 inches.
Greatest distance between saws [illegible] saw machine, 19 inches.
Greatest distance between saws [illegible] saw machine [illegible] inches.
Smallest distance between stationary and adjustable saws, [illegible] inches.
Weight, single roll machine, net, 1,4[illegible] lbs. Gross, 1,700 lbs.
Weight, double roll machine, net 1,[illegible] lbs. Gross, 1,850 lbs.
Cubic contents boxed for export, 72 cubic feet.

	Single Pressure Roll			Double Pressure Roll		
	Without Saws	With Solid Saws	With Inserted Tooth Saws	Without Saws	With Solid Saws	With Inserted Tooth Saws
Price [illegible] Single Edger	$190.00	$200.00	$232.00	$214.00	$224.00	$2[illegible]
Price [illegible] Saw Edger	205.00	220.00	268.00	229.00	[illegible]	292.00



"AMERICAN" PONY PLANER

Built either as a single or double surfacer (the cut shows the double surfacer). It is well adapted to all kinds of planing and will do the work rapidly and accurately.

The double surfacer is particularly suited to box board, sash, door, and casing work. The machine has a record of 4,600 feet of 12-inch boards in one hour. It is easily and rapidly adjusted, and the bed is provided with friction rolls. Driven feed rolls are placed in front and rear of the cutter head.

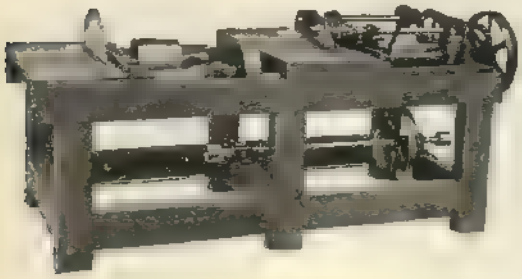
Made in three sizes, 16, 20 and 24 inches wide to work any thickness up to 6 inches. Countershaft has tight and loose pulleys 10x5 inches and should run 900 revolutions per minute.

Weight, 800 to 1,000 lbs., according to size.

16 inch with countershaft single surfacer.	Price, $350 00;	double surfacer,	$450 00
20 " " " " "	" 400.00;	" "	500.00
24 " " " " "	" 450 00;	" "	550 00

"AMERICAN" COMBINED LATH MILL AND BOLTER

Capacity 30 to 40 M Lath per Day



The Frame is made of hard wood, mortised and tenoned, and securely bolted together making it very substantial and durable.

The Arbors are of best grade steel, run in self-oiling boxes which are cast solid with the iron husk frame, to which all the working parts are attached thereby keeping everything in line, and avoiding the heating of the bearings

The Lath Mill is fitted with two sets of power feed rolls, one set in front and one behind the saws

Springs are provided for regulating the pressure of the rolls on the stock, and the tension may be changed as desired. The arbor of the Lath Mill may be fitted for any number of saws, from three to six as may be ordered, but usually only three saws are furnished.

Changing Saws is very easily and rapidly done by removing a section of the table

Burning Saws is prevented by a lever which raises both top feed rolls permitting the stock to be drawn back as it is impossible to prevent the stock becoming occasionally wedged in the saws before the machine can be stopped. For this reason it is important to always keep the saws sharp and set. Capacity, 50,000 lath per day

The Bolter is furnished with one wide Feed Roll. The Guide is adjustable and can be instantly set for any width required. Pressure Roll furnished for Bolter when desired at small additional cost.

Frame, 8 feet long, 37 inches wide 27 inches high
Lath saws, 10 inches. Bolter saws, 22 inches.
Driving pulleys on both mandrels 8x8 inches
Speed of lath saws, 2,700; bolter saw, 1,400.
Weight (combined machine net, 1,050 lbs.
Weight packed for export gross, 1,350 lbs
Cubic measurement, about 40 cubic feet.
Price (complete with three lath saws and bolting saw) $200.00

Price (complete with four lath saws and bolting saw) $204.00
Price (complete with five lath saws and bolting saw) 208.00
Price (complete with six lath saws and bolting saw) ..... [illegible]
Price pressure roll for bolter 10.00
Extra 12-gauge lath Saws, each 2.90

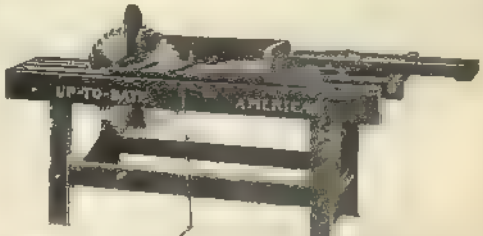
THE "UP-TO-DATE" SHINGLE MACHINE

A Reliable Low Priced Machine

Just right for small mills, farmers and others having light power who want to make a few thousand shingles per day. Makes a perfect shingle any length from 16 inches to 24 inches

The Carriage is very substantial and provided with a strong iron yoke at the forward end. The underside is fitted with gibs, planed to accurately fit the iron track on which they slide and to which they hold the carriage securely. These gibs are slotted to provide adjustment for cutting thicker or thinner shingles and to take up lost motion.

Power Feed is provided which is thrown into gear by pressure of the foot on the stirrup, and the machine can be used either with hand or power feed without change in adjustment



With Power Feed and Edger Attachment

The Mandrel is of the best steel with long self-oiling boxes, connected by heavy yoke with adjusting screw for regulating the lead of the saw

A New Feature, and a very valuable one, is the handy little edger, which has an 8-inch saw and a convenient gauge, insuring square, straight-edge shingles

A Special Carriage and larger saw for bolting the shingle stock can be furnished, when desired, at small additional cost. Capacity, 5,000 to 10,000 shingles per day. Experts have done more.

The machine will handle square, round, or split blocks and does not require an experienced operator

Furnished complete, with 24-inch shingle saw, 8-inch edger saw and feed and edger belts

Dimensions

Frame 7 feet long 2 feet 5 inches wide
Carriage, 3 feet 8 inches long 13 inches wide
Power feed, 36 inches.
Main mandrel, 1 7/16 inches.
Driving pulley, 6x8 inches.
Weight with edger net, 525 lbs., gross 750 lbs.

Power required 4 to 8 horse power
Speed of 24-inch saw, about 1,[illegible] revolutions
Price with edger $110.00
Price without edger 100.00
Bolting carriage, extra 10.00
36 inch bolting saw extra 28.00

American Truck

Built for Freight and Passenger Service

Gasoline and Electric

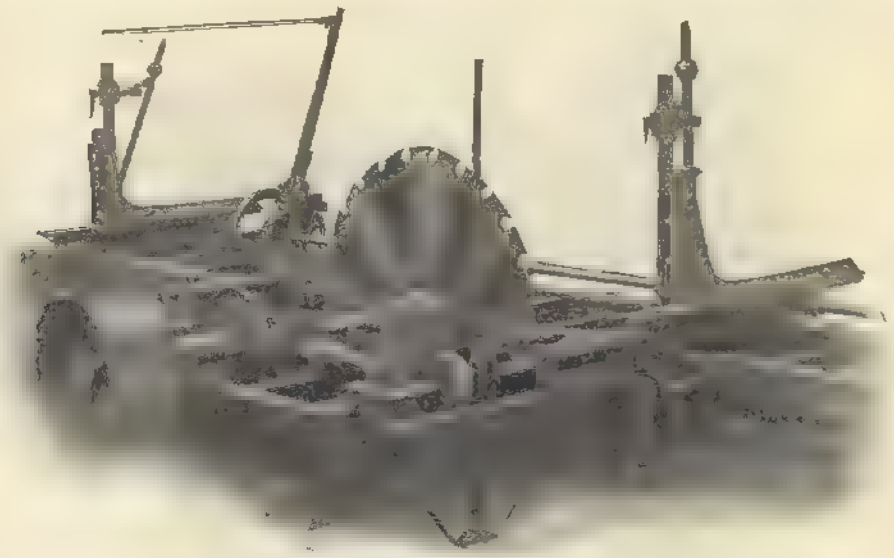
One to Five Tons

Delivery Wagons, Omnibusses, Sight-Seeing Cars, Ambulances, Patrol and Chemical Wagons

¶ We will exhibit in New York at Grand Central Palace Auto Show. Opening New Year's Eve.

AMERICAN MOTOR TRUCK CO. MAIN OFFICE AND FACTORY LOCKPORT, N. Y.

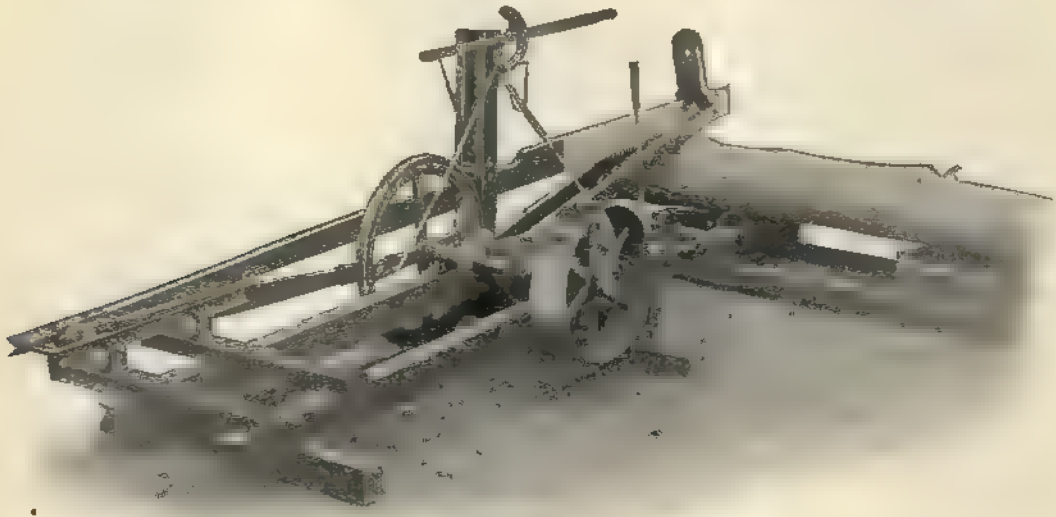
"AMERICAN" IMPROVED VARIABLE FRICTION FEED SAW MILLS



The "American" Variable Friction Feed Saw Mill [illegible] the best [illegible] years entered into the [illegible] In order to make their mills effective the [illegible] consisting of [illegible] expensive to keep in repair. The feed [illegible] are not [illegible] adjustments. The "American" is free from all these objections as [illegible] and secure, [illegible]

Variable Feed. We use Bevel [illegible] giving a positive [illegible] and [illegible] and [illegible] and

"AMERICAN" CHAMPION FRICTION FEED DRAG SAW



This machine, as its name indicates, is the Champion among Drag Saws, having decided advantages over others on the market. It is strong and durable, simple in construction, easy to operate and a most rapid worker.

The main frame is 26 inches wide, 8½ feet long and is made of 3½x5½-inch seasoned hard wood strongly framed together, securely bolted and braced.

The track is 27 inches wide, 16 feet long, made of 2¼x4-inch timbers well framed together.

The Friction Feed is very simple, yet positive and effective. It will start, stop or reverse instantly by very slight motion of the feed lever, without any effort on the part of the operator. It will not stick or get out of order and will last for years. This enables the operator to feed the logs ahead or back at will as much or little as desired, and stop at any point without running back or losing time. This feature alone puts the "Champion" ahead of any other Drag Saw in the market, yet it has every practical advantage that can be desired in a machine of its kind.

The Balance Wheel is large and heavy, and counter-balanced, imparting a strong, steady motion and is arranged for changing the stroke from 16 inches to 20 inches or 24 inches.

The Log Truck is very substantial, having steel axles and two dogs for securely holding the logs.

The Saw is raised with one hand and the friction feed operated with the other, thus changing and setting for a new cut without slowing down or stopping. A strong reliable saw guide is also provided.

Unless otherwise ordered each machine is furnished complete with 24x6 inch driving pulley, log truck, power rolls, tumbling rod with two Universal Couplings, 16 feet of track and one 7 foot 6 inch saw.

Tight and loose pulleys can be furnished if so desired at small additional price.

When operated by sweep horse power, the driving shaft is fitted with Universal Coupling for tumbling rod instead of driving pulley.

We can supply this Drag Saw without power feed and with a Ratchet Lever to operate the feed rolls thus making a most desirable hand feed machine at very low price.

Capacity: 30 to 40 cords of wood per day, depending on kind of wood, power and speed.

Power required: two to four horse power will operate machine to good advantage; more power will give greater capacity.

Speed recommended: 125 to 175 strokes per minute.

Length of stroke may be adjusted to 16 inches, 20 inches or 24 inches.

Weight complete, 1,150 lbs. Weight packed for shipment, 1,300 lbs. Weight packed for export, 1,450 lbs.; 51 cubic feet.

Price complete with one saw and pulley or Universal Coupling	$100.00
Price complete with one saw and tight and loose pulleys	110.00
Price complete with one saw and pulley without power feed	90.00

Gents' and Ladies' American Low-Price Watches

Stem Wind and Stem Set.

The Guarantee on Ingersoll Watches.

is largely responsible for the phenomenal rise in sales of 100 per day in 1892 to the astonishing average of 10,000 per day at the present time.

The Ingersoll Yankee Dollar Watch.

Open Face, 16 size, plain case, milled center band, hinge back, nickel finish, Roman or Arabic dial, **stem wind and set.** Maker's guarantee in each watch.

No. 8824 Single watch, each..$1.00
Lots of 12 dozen, each..... 1.50
Gold plate or gold metal finish watches furnished at 10c. extra.

The Ingersoll Eclipse Watch.

Open Face 16 size, plain case, milled center band snap back, Roman or Arabic dial, **stem wind and new pendant set.** The Eclipse is the second Ingersoll in popularity and large sales.

Maker's guarantee accompanies each watch.

No. 8825 Single watch, each..$2.10
Lots of 1 dozen, each..... 2.00
Lots of 12 dozen, each..... 1.90

The Ingersoll Triumph Watch.

Open Face 16 size, plain case of solid white metal, engine turned, center band, snap back Roman or Arabic dial, fancy engraved diamond cut hands, **stem wind and lever set.** Case furnished in white silver and plain dial or gun metal with black dial. When ordering specify which is wanted. Maker's guarantee in each watch.

No. 8826 Single watch each $2.35
Lots of 1 dozen, each..... 2.12
Lots of 12 dozen, each . . . 2.02

ORDERS FILLED FOR all of one kind or 3 dozen assorted at quantity prices.

INGERSOLL "MIDGET" WATCHES.
Lowest priced small size watch -suitable for ladies, girls or boys on the market. Each one has the "INGERSOLL GUARANTEE" for one year. (Cuts are reduced size.)

The Always Right, 18 Size.

Nickel, stem wind and stem set, knurled edge case, heavy [illegible] Warranted for one year. This model 18 size and is the best stem wind and stem set watch on the market. Every watch warranted for one year. Gilt watches furnished on gold dial.

No. 8827 Price, each.. $1.50
In lots of 25 or more, each 1.44

The Chronometer Watch.
(Cut actual size.)

Nickel case, 14 size, stem wind and stem set. The best and most satisfactory watch for the money. Guaranteed for one year.

No. 8828 Price, each... $1.34
In lots of 25 or more, each 1.24
In lots of 50 or more, each 1.20

Retails at low priced watches such as this **Chronometer** make a good leader in your stock. Order a sample dozen from us at once.

"MIDGET"—REGULAR.

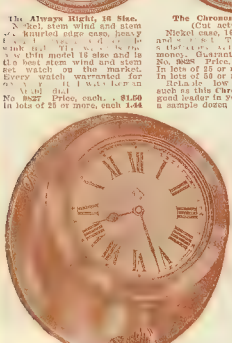
Nickel, [illegible] engraved case, 6-size, gilt movement, stem wind pendant set.

No. 8829 Plain case ..... Each $ 2.86
No. 8830 Fancy case ..... Each 2.86
In lots of 12 each ..... " 2.76
In lots of 144 each ..... " 1.90

"Midget"—Artistic.

Solid white metal case, beautiful embossed design in French gray oxidized finish, nickel movement.

No. 9831 Each $3.60
In lots of 12 each 3.50



THE ANSONIA MOTOR.
(Illustration exact size.)

The Motor, designed for automobiles motor - boats etc., made of polished brass, and contains a reliable stem wind and stem set movement. Each one guaranteed a good time keeper. Owing to the large increase of automobiles and motor-boats you will find this a very popular article to have in your stock.

Complete.
No. 9832..$4.25

Ansonia Mentor, 18 Size.

The new this model, 18 size, stem wind and pendant set watch. Finished in nickel, plain back, the smallest and most compact low-priced watch on the market. Each one guaranteed a good time keeper.

No. 9833 Price, each.....$1.70
In lots of 50, each..... 1.52

New Ansonia Watch, 18 Size.

Nickel case, 18 size, Open Face, stem wind and pendant set, finished in nickel plain back.

No. 9834 Auto watch, heavy figures, each $1.60
No. 9835 Guide watch, light figures, each..... 1.60

Gents' Imported Stem Wind Watches

Illustrations are exact size. PRICES EACH.

Sterling Silver.

Open Face, 12 size, sterling silver, French grain or sol. engraved [illegible] signs, double jointed back, very thin model, very reliable 7 jeweled nickel lever movement, exposed winding wheels, pendant set patent double regulator, a big seller

No. 9708 ..... $15.30

Same [illegible] as No. 9708 with 15 jewel [illegible] movement [illegible] patent regulator

No. 9709 ..... $23.50

Sterling Silver.

12 size, Open Face, jointed back, thin model plain or engraved plated cap, full jeweled cylinder movement, pendant set.

No. D.9800 With white dial $5.70

[illegible] Open Face, white dial [illegible] .....

No. 8891 Open Face, white dial 7.00

No. 8892 Hunting, white dial 4.75

(Cut shows 10 size.)

The Success. Sterling Silver.

Solid silver, heavy well made engraved case and very reliable 7 jeweled pendant set lever movement with exposed winding wheels and pallets, well finished, good serviceable watch

No. 9803 Hunting case 16 size (18 ligne) $12.30

No. 9804 Hunting case 10 size (15 ligne) 12.30

No. 9805 O. F. case 12 size (13 ligne) 11.16

No. 9806 O. F. case, 10 size (15 ligne). 11.16

12 Size, Gun Metal and Nickel.

Open Face, 12 size, gun metal, bassine, [illegible] case pendant set 7 jeweled nickel [illegible] lever movement [illegible]

No. 8807 Gun metal case ..... $ 8.20

No. 8808 Nickel case 7.00

No. 8809 Same size and style extra thin [illegible] lever movement gun metal case 17.00

No. 8810 15 jeweled, with [illegible] gun metal case.... 15.00

French Gray Metal Watches.

14 size, Open Face white metal with gray [illegible] are embossed (raised) and the designs all clear cut. They will not tarnish or rust. Nickel [illegible] pendant set.

No. 8811 Each... ..... $5.00

(Cut shows 16 ligne.)

The Eureka. Nickel Case.

[illegible] Open Face Watch, plain case glass cap, 16 [illegible] lever movement, pendant set

No. 8812 Each $4.35

No. 8814 Nickel case, next larger size 18 ligne 1.30

Eureka. Oxidized Steel.

Oxidized steel case, like as illustration above, cylinder escapement movement

No. 8814 16 ligne $4.60

No. 8815 18 ligne 4.60

The Enigma. Gun Metal.

Very thin model, gun metal case [illegible] with [illegible] movement, pendant set

No. 8817 Oxmanoid or fancy gold porcelain metal dial $4.70

The Enigma

Very thin model, [illegible] cap jewel [illegible] with [illegible] movement [illegible]

No. 8818 [illegible] $4.40

No. 8819 Nickel case 4.50

The Enigma. Gun Metal.

Very thin model, gun metal case [illegible] movement [illegible] set

No. 8820 Silk finished dial $4.40

No. 8821 Silver finished dial 4.40

The Enigma.

Very thin model case snap [illegible] movement, [illegible] dial, pendant set

No. 8822 Gun metal case $3.80

No. 8823 Nickel case 3.90

The Enigma is a machine made movement, all materials are interchangeable, and are furnished in finished form ready to use, fitting perfectly.

ANSONIA CLOCK CO.'S GENUINE ONYX CLOCKS

PRICES EACH.

ASHTON—$27.30
Genuine White Onyx.
Height, 12¼ inches, width, 10⅝ inches.
Eight-day, half hour gong strike. French or rococo sash, beveled glass Porcelain dial, 4½ inches. Arabic or Roman.

ALEXIS—$23.75
Genuine White Onyx.
Height, 9¾ inches. Width, 12¾ inches.
Eight day, half-hour gong, French or rococo sash, beveled glass Porcelain dial, 5 inches, Arabic or Roman, visible escapement

WAUNETA—$47.25
Genuine Green Onyx.
Height, 11½ inches. Width, 11¾ inches.
Eight-day, half-hour gong strike. French or rococo sash, beveled glass. Porcelain dial, 5 inches, Arabic or Roman, visible escapement.

WAGNER—$35.75
Genuine Green Onyx.
Height, 11¼ inches. Width, 11¾ inches.
Eight-day, half-hour gong strike, French or rococo sash, beveled glass. Porcelain dial, 5 inches, Arabic or Roman, visible escapement.

Waterbury Clock Co.'s Store and Office Clocks

Prices Each.

8-INCH DROP OCTAGON

8-inch dial. Height, 19 inches.

	Oak.	Veneered.
8-day, time	$5 00	$5 40
8-day, half-hour strike	6 00	6 40
8-day, time, calendar	5 50	6 90
8-day, half-hour strike, calendar	6 50	6 90

10-INCH DROP OCTAGON

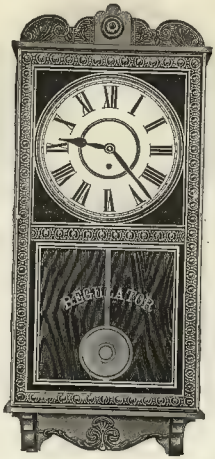
10-inch dial. Height, 22 inches.

	Oak.	Veneered.
8-day, time	$5 25	$6 65
8-day, half-hour strike	6 25	6 65
8-day, time, calendar	6 75	8 15
8-day, half-hour strike, calendar	6 75	7 15

12-INCH DROP OCTAGON

12-inch dial. Height, 24 inches.

	Oak.	Veneered.
8-day, time	$6 00	$6 40
8-day, half-hour strike	7 00	7 40
8-day, time, calendar	8 50	9 95
8-day, half-hour strike, calendar	7 50	7 90



CRANE

Oak, 12-inch dial, height, 37 inches, width 10½ inches.

8-day, time	$6 60
8-day, half-hour strike	7 80
8-day, time, calendar	7 30
8-day, half-hour strike, calendar	8 30

10-INCH HERON

Oak, 10-inch dial, height, 30 inches.

8-day, time	$6 25
8-day, half-hour strike	7 25
8-day, time, calendar	8 75
8-day half-hour strike, calendar	7 75

12-INCH HERON

Oak, 12-inch dial, height, 32 inches.

8-day, time	$6 50
8-day, half-hour strike	7 50
8-day time, calendar	7 00
8-day, half-hour strike, calendar	8 00

ALPHA

Oak or walnut, 12-inch dial, diameter 16½ inches.

8-day, time (pendulum movement)	$6 50
8-day, half-hour strike	7 00

LYCEUM—$7.50.

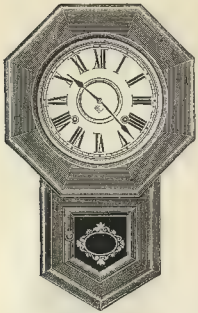
Oak or walnut, 8-day, time (pendulum movement). 12-inch dial, height, 25 inches, width, 17½ inches.

WINDOW CLOCK—$13.25.

Beveled plate glass, gilt figures, 8-day, lever, time, 16-inch dial.

Ansonia Clock Co.'s Store and Office Clocks

PRICES EACH.

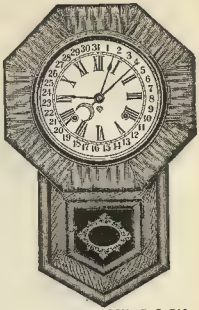


8-INCH DROP OCTAGON—R. C.
Oak or rosewood, dial 8 inches, height 19½ inches, Arabic or Roman.
Eight day, time $5 90
Eight-day, strike 6 90

10-INCH DROP OCTAGON—R. C.
Dial 10 inches, height 21½ inches
Eight-day time $6 15
Eight-day, strike 7 15

12-INCH DROP OCTAGON R. C.
Dial 12 inches, height 24 inches.
Eight-day time $6 90
Eight-day, strike 7 90

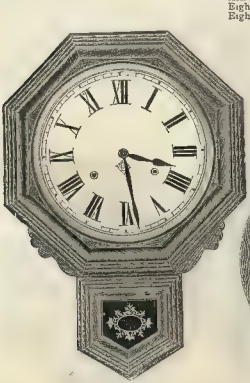
REGULATOR "A."
Ash or black walnut, dial 12 in., height 32in.
Eight-day time ..... $ 9 90
Eight-day, strike 10 90



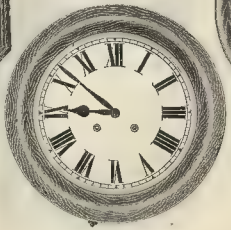
8-INCH DROP OCTAGON—R. C. CAL.
Oak or rosewood, dial 8 inches, height 19½ inches, Arabic or Roman
Eight day, time, calendar $6 30
Eight-day, strike, calendar 7 30

10-INCH DROP OCTAGON R. C. CAL.
Dial 10 inches, height 21½ inches.
Eight-day time, calendar $6 55
Eight-day, strike, calendar 7 55

12-INCH DROP OCTAGON R. C. CAL.
Dial 12 inches, height 24 inches.
Eight-day time, calendar $7 30
Eight-day, strike, calendar 8 30



DROP OCTAGON "B"
Oak, dial 12 inches, height 24½ inches.
Eight-day time $6 60
Eight-day strike 7 60



GRESHAM
Black walnut, mahogany or oak. Pendulum. Dial 12 inches.
Eight-day time $6 60
Eight-day, gong, strike 7 60

ROUND DROP
Oak or rosewood, dial 12 inches, height 23¾ inches.
Eight-day time $6 60
Eight-day, strike 7 60

MOTION PICTURES AND STEREOPTICON GOODS

LIST PRICES

We will illustrate only a few articles in this line, but can furnish anything you desire. Special Motion picture and Stereopticon catalogue, will be sent free on application, together with all the necessary information. Your particular attention is invited to complete outfits of which we make a specialty. Send for complete catalogue.

The New Optigraph No. 4 Model 1907

COMPLETE MOTION PICTURE MACHINE.

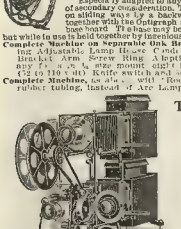
Especially adapted to any class of work where the use of Lantern Views is of secondary consideration. The Lamp House is suspended from, and supported on sliding ways by a backward and forward adjustment of 4½ inches, and together with the Optigraph and sliding base, is mounted on a separable oak base board. The base may be easily divided for convenience in transportation, but while in use is held together by invisible screw clamps which makes it as rigid as a solid board. PRICES:

Complete Machine on Separable Oak Base, including Optigraph, No. 4 Mechanism 3 in. Lens, Sliding Adjustable Lamp House Condensing Lens, Burner Support, Use Grip Sliding Base Bracket Arm, Screw Ring, Adapting Ring, Take-up Device, Stereopticon Objective Lens and Lens Mount, eight feet Rod Rain Rod Head, Arc Lamp, Rheostat (32 to 110 Volt) Knife switch and 50 feet of insulated wire $129.50

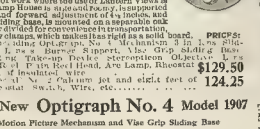
Complete Machine, as above, with Rheo Special No. 2 Calcium Jet and eight feet of rubber tubing, instead of Arc Lamp, Rheostat, Switch, Wire, etc. 124.25

The New Optigraph No. 4 Model 1907

Motion Picture Mechanism and Vise Grip Sliding Base



In Combination with The ENTERPRISE DOUBLE DISSOLVING STEREOPTICON



The "Rec Special" Calcium Jet No. 1, with lime turner and pain single hole nozzle. Each $11.00

The "Rec Special" Calcium Jet No. 2, with lime turner, tube mixer and patent "Multi Non Pop" Nozzle. Each $13.00

The "Rec Special" Calcium Jet No. 3, with lime turner, tube mixer patent "Multi Non Pop" Nozzle and cocks. Each $15.35

PRICES:

Optigraph No. 4 Mechanism with 3 inch lens, Sliding Base, Single Enterprise Lanterns, extension legs for lantern, one pair condensing lenses, objective lens any focus from 4 to 12 inch inclusive and ¾ size mount, and slide carrier $110.00

Optigraph No. 4 Mechanism with 3 inch lens, Sliding Base, double dissolving stereopticon, extension legs on lower lantern, one pair condensing lenses, objective lens any focus from 4 to 12 inches inclusive in ¾ size mount, and two slide carriers $158.00

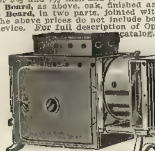
For motion picture lenses of longer focus than 3 inch, add 90 cents for 3½ and 1½ inch and $2.50 for 5¼ and 6 inch.

Base Board, as above, oak, finished and varnished $2.65

Base Board, in two parts, jointed with thumb bolts $4.55

The above prices do not include board, jets, dissolving key, or take up device. For full description of Optigraph and lanterns see special catalog.

MODEL 1906



Patented in the United States and Canada.

The above view shows the Objective Lens Door closed and in position to show Stereopticon Views.

THE "ENTERPRISE" has all the adjustments required for high class stereopticon work, is equipped with the latest improvements, possesses many important advantages over others, is the most artistic in design, the best finished and absolutely the best Stereopticon on the market, a fact that is amply evidenced by the sales, which we believe are greater than of all other stereopticons combined, and it is sold for less money than other instruments of far less value.

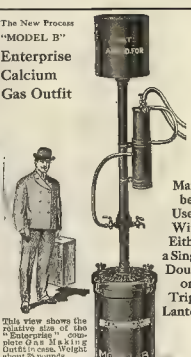
PRICES:

The Enterprise Single Stereopticon, lower or upper, with condensing lenses, "The E." objective lens of 3, 3½ or 12 inch focus $41.00

in one-fourth size mounts and one double slide carrier...

The New Process "MODEL B"

Enterprise Calcium Gas Outfit



May be Used With Either a Single, Double or Triple Lantern

This view shows the relative size of the "Enterprise" complete Gas Making Outfit in case. Weight about 25 pounds.

Price of Model B Complete Gas Making Outfit..... $62.25

The Vapo Search Light Gas Outfit

For Portability Compactness, Power and Quality of Illumination, Safety, Cleanliness and Economy is "A World Beater"

AT A COST OF ABOUT EIGHT CENTS per hour the Vapo Search Light produces a beautiful white light, and in every way equals anything else that has ever been produced in this line.

PRICES:

The "VAPO SEARCH LIGHT" Gas Outfit, including tank, burner, air bulb, connecting tube, lens, filler, two VAPO SEARCH LIGHT mantles and instructions $23.00

SEARCH LIGHT MANTLES, special, each ..... .35

SEARCH LIGHT MANTLES, per doz. 4.00

COLUMBIAN SPIRIT, per pint, in can ..... .70

Either Columbian Spirit or grain Alcohol may be used, and either kind may be had at any well-stocked drug-store.

We are now placing on the market, THE MULTIGRAPH which is the latest and most complete motion picture machine. It is especially designed for the highest class of g-cent theatre and other motion picture work. Write for particulars.

CARPET BEATERS.

No. 90.

No. 91.

No. 95.

Showing No. 96 with sectional view of Handle.

Per Dozen

No. 90 PLAIN SPRING: No. 9 Coppered Steel Wire, Plain Finish Hardwood Handle Heavy Iron Ferrule Spring Inserted in Handle and Secured with Iron Wedge. Width of Spring 6½ inches. Length over all 33 inches Weight per dozen about 6 lbs..... $3 00

No. 91 DOUBLE SPRING: No. 10 Coppered Steel Wire Stained Hardwood Handle Spring Inserted in Handle Width of Spring 8½ inches Length over all 27 inches. Weight per dozen about 7 lbs. 3 60

Per Dozen

No. 95—BRAIDED SPRING Three No. 12 Galvanized Steel Wires Plain Finish Hardwood Handle, Heavy Steel Ferrule Spring Inserted in Handle Width of Spring 8 inches Length over all 31 inches; Weight per dozen about 8½ lbs. $3 50

No. 96—DOUBLE SPRING No. 10 Coppered Steel Wire, Plain Finish Hardwood Handle, Spring made of One Piece of Wire, which passes through Handle, Wire Ferrule wound around Handle; Prevents Handle Splitting Width of Spring 10 inches; Length over all 34 inches; Weight per dozen about 9 lbs.... 6.50

RATTAN.

Head formed with Two Strands of Rattan, Interwoven as shown in Cut; Handle has 10 Strands of Rattan Twisted and Bound at Ends

Per Dozen

No. 93—LENGTH OF HEAD 8½ INCHES Width of Head 7 inches Length over all 27 inches Weight per dozen about 2¼ lbs $4 75

No. 94—LENGTH OF HEAD 10 INCHES Width of Head 8 inches; Length over all 33 inches, Weight per dozen about 5 lbs 6.25

One Dozen in a Bundle.

WEAVERS' REEDS.

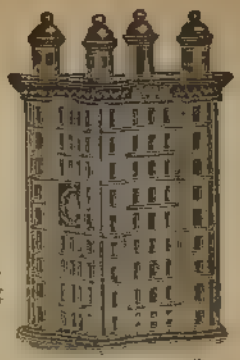
Made of Selected Cane Reeds; Wire Sides Corded; Hardwood End Pieces.

Nos.	400/4	500/4	600/4	400/5	500/5	600/5
Length, Quarters	4-4	4-4	4-4	5-4	5-4	5-4
Length, inches	40	40	40	47	47	47
Width, inches	5	5	5	5	5	5
Number, Reeds	400	500	600	400	500	600
Weight per dozen about, lbs	18	18	18	19	19	19
Per dozen	$21.00	21.00	21.00	21.00	21.00	21.00

Packed Loose.

TOY BANKS.

Slot in Top to Admit Any Coin Smaller than a Half Dollar.



SKY SCRAPER.

Cast Iron; Top Gold Bronze Finish; Sides and Bottom Aluminum Bronze Finish; Fastened together by Long Screw through Center of Sides.

Per Dozen

No. 84—Height over all 4½ inches; Width 2 inches; Depth 2¼ inches; Weight per dozen about 12 lbs. $6.00

One-half Dozen in a Cardboard Box.

Per Dozen

No. 48—Height over all 3½ inches; Width 1⅝ inches; Depth 1⅝ inches; Weight per dozen about 7 lbs. $3.00

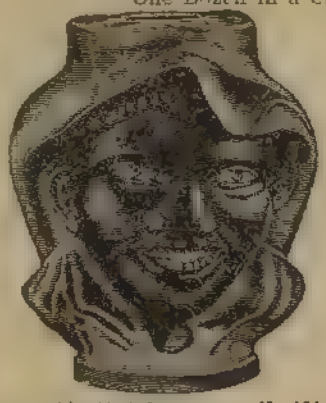
One Dozen in a Cardboard Box

DEVIL HEAD

Cast Iron, Finished in Dark Red and Black; Fastened together by Screw extending through Sides

Per Dozen

No. 64—Height over all 4½ inches; Width 3¼ inches; Depth 4⅛ inches; Weight per dozen about 18 lbs. $6.00

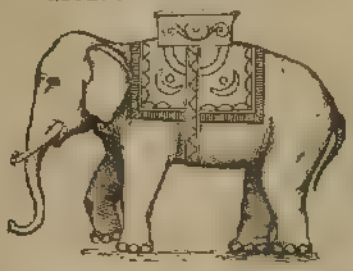


NEGRO

Cast Iron, Gold Bronze Finish, with Black Face; Fastened together by Screw extending through Head near Base.

Per Dozen

No. 44—Height over all 4⅛ inches; Width 3⅛ inches; Depth 3⅝ inches; Weight per dozen about 17¼ lbs. $6 00

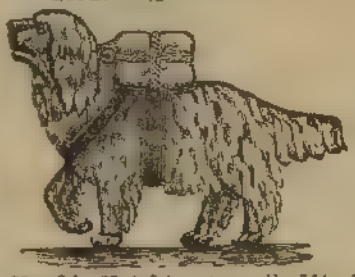


ELEPHANT.

Cast Iron, Drab Color Finish; Gold and Silver Finish Trimmings; Fastened together by Screw through Sides

Per Dozen

No. 54—Height over all 4⅞ inches; Length 7 inches; Weight per dozen about 23 lbs. . . . $7.00



DOG

Cast Iron, Finished in Brown Enamel; Gold and Silver Finish Trimmings; Fastened together by Screw through Center of Sides.

Per Dozen

No. 94—Height over all 5½ inches; Length 8 inches; Weight per dozen about 24 lbs . . $7.00

LION.

Cast Iron, Solid Bronze Finish; Fastened together by Screw through Center of Sides.

Per Dozen

No. 34—Height over all 5⅛ inches; Length 6⅝ inches. Weight per dozen about 22½ lbs. . . . $7.00

HORSE, with Stand.

Cast Iron, Gold Bronze Finish; Fastened together by Screw extending through Sides.

Per Dozen

No. 43—Height over all 7½ inches; Length 7 inches; Size of Base 4½ inches Long, 2¾ inches Wide; Weight per dozen about 24¾ lbs. $12.00

One-twelfth Dozen in a Cardboard Box.

MATCH SAFES.

WALL.

DOUBLE. Per Dozen.

No. 8—DOUBLE; I. C. Tin, Nickel Plated with 2x 4½ inch Trimming Scratch, Height 7 inches, Width 4½ inches, Projects 2½ inches from wall. Weight per dozen about 2¼ lbs... $2.00

SQUARE. Per Dozen

No. 2—SQUARE; I. C. Tin, Japanned Assorted Colors, With Scratch, Height 5 inches, Width 2⅞ inches, Projects 1½ inches, Weight per dozen about 2¼ lbs... $1.00

One Dozen in a Package.

TWIN. Per Dozen

No. 1—TWIN DOUBLE; I. C. [illegible] Japanned, With Scratch; Height [illegible] inches, Width 4⅜ inches, Projects 1 inch; Weight per dozen about 2¼ lbs. $1.00

TOY BANKS.

Heavy Frosted Finish Cast Iron with Nickel Plated Trimmings; Slot in Back to Admit any Coin Smaller than a Dollar.

Per Dozen

No. 45—COMBINATION; With Combination Spring Lock and Key; Directions for working Combination accompany each Bank. Height [illegible] inches, Width 3 inches, Depth 3½ inches, Weight per dozen about 30 lbs. $9.00

One-twelfth Dozen in a Cardboard Box.

Per Dozen

No. 50—WITH SPRING LOCK and Key; Height 4¼ inches; Width 3¼ inches; Depth 2⅝ inches; Weight per dozen about 18 lbs. $4.50

One quarter Dozen in a Cardboard Box.

Per Dozen

No. 9½—Frosted Finish Cast Iron; Open-work Sides, Top and Bottom, **Slot in Back to Admit any Coin Smaller than a Dollar; COMPLETE WITH** LOCK AND KEY, Height 3¼ inches, Width 2½ inches, Depth 2¼ inches; **Weight per dozen about 9 lbs.** $2.00

One-half Dozen in a Package.

Per Dozen

No. 10—CAST IRON; Green Panels, with Black Trimmings, Plated Back and Bottom; Slot in Back to Admit Coin; COMPLETE WITH LOCK AND KEY, Height 2¾ inches, Width 2⅞ inches, Depth 2¾ inches, Weight **per dozen about 12 lbs.** $2.25

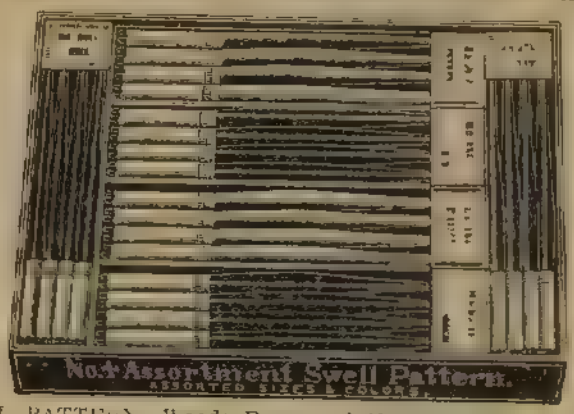
One quarter Dozen in a Package.

Per Dozen

No. 15—CAST IRON; ASSORTED COLOR Panels, Green and Red, with Japanned Trimmings, Slot in Top and Bottom; COMPLETE WITH LOCK AND KEY, Height 4½ inches, Width 3 inches, Depth 2⅞ inches, Weight per dozen **about 15 lbs.** $4.25

One quarter Dozen Assorted Colors in a Package.

PEN HOLDER ASSORTMENTS.



No. 4—ASSORTMENT, SWELL PATTERN, Wood; Brass and Nickel Tips, Patent Fasteners; Assorted Sizes and Colors, Red, Black and Plain Polished; WITHOUT PENS, Weight per gross about 2 lbs... Per Gross $5.50
One-half Gross in a Cardboard Box; Sold only in Complete Assortments.

PEN HOLDERS.

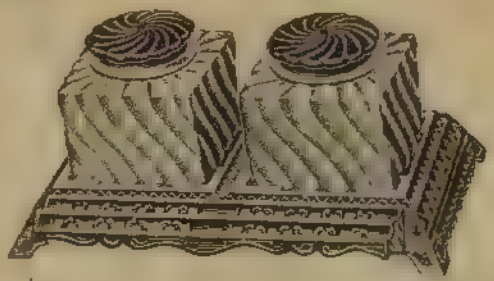
No. 320—SCHOOL; STRAIGHT; Corrugated Cedar, 6 inch Painted Red; with Polished Steel Tips; Weight per gross about 1½ lbs.. Per Gross $0.75

No. 324—SCHOOL; SWELL, 6 inch; Wood; Painted Red; with Polished Steel Tips; Weight per gross about 1¼ lbs .. .. Per Gross $1.25

One Gross in a Cardboard Box.

INK STANDS.

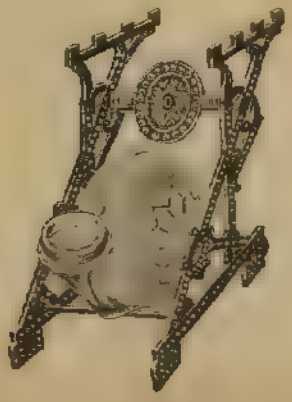
Ornamental Cast Iron, Etruscan Bronzed, Ground Surface, Base and Top; Rack for 2 Pens.



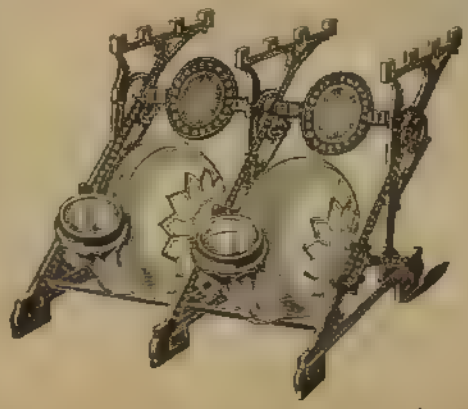
No. 20—ONE HEAVY Ribbed Glass Bottle; Base 4¼x4¼ inches; Weight per dozen about 18 lbs... ..... Per Dozen $5.50

No. 90—TWO HEAVY Ribbed Glass Bottles; Base 7½x4¼ inches; Weight per dozen about 36 lbs ..... Per Dozen $11 00

One-twelfth Dozen in a Cardboard Box.



Ornamental Cast Iron, Etruscan Bronzed, Surface Not Ground, Stand 4¼ inches High; Rack for 3 Pens.



No. 270 ONE PLAIN Glass Revolving Bottle; Weight per dozen about 9 lbs..... Per Dozen $4.50
One-fourth Dozen in a Cardboard Box.

No. 280—TWO PLAIN Glass Revolving Bottles, Weight per dozen about 15 lbs..... Per Dozen $6.75
One Sixth Dozen in a Cardboard Box.

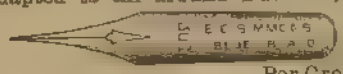
TRADE MARK "BLUE BRAND," REGISTERED.

STEEL PENS.

Made of Best Pen Steel. Easy and Regular Flow of Ink.

BLUE BRAND*.

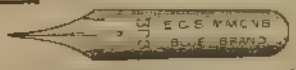
BLUE BRAND* PENS are manufactured from the Finest Quality of Steel; Are Elastic and Well Tempered; Adapted to all around Business, Office and School Purposes.



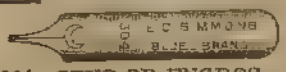
Per Gross

No. 301—BANK..... $1 50

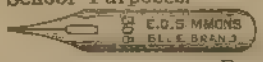
No. 302 FALCON $1.50



No. 303—RELIABLE. $1.50

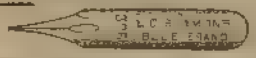


No. 304—STUB OR ENGROSSING..... .. $1.50

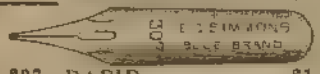


Per Gross

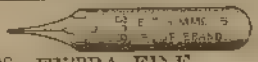
No. 305—SCHOOL..... $1.50



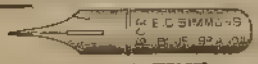
No. 306—UNIVERSITY $1.50



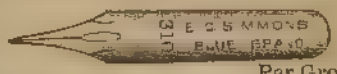
No. 307—RAPID..... . $1.50



No. 308—EXTRA FINE..... $1.50



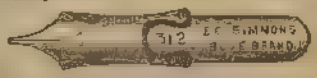
No. 309 MEDIUM FINE.... $1.50



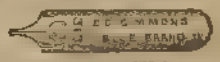
Per Gross

No. 310—RUN EASY..... $1.50

No. 311—OFFICE..... $1.50



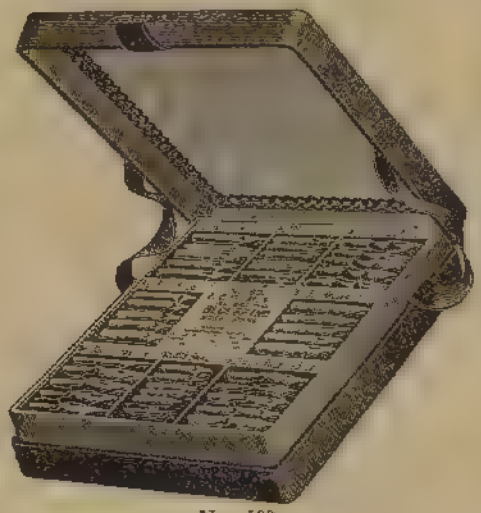
No. 312—PROBATE STUB .. $1.50



No. 313—SMALL STUB..... $1.50

Weight per Gross about 3 ozs.; One Gross in a Cardboard Box. CUTS ACTUAL SIZE.

STEEL PEN ASSORTMENTS.



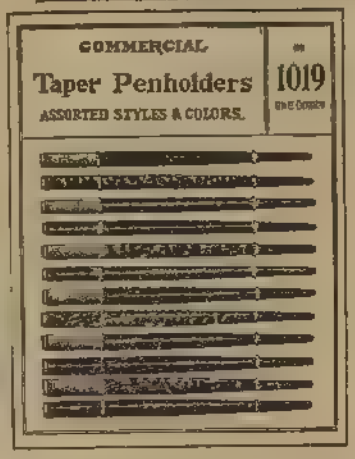
No. 500.

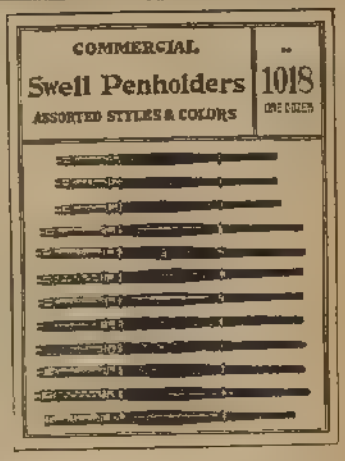
These Assortments are put up in a Heavy Cardboard Box 6¼x5¼x1¼ inches. Bound in Imitation Alligator Leather, with Glass Hinged Cover, Making a Very Attractive Box for Show Case Display.

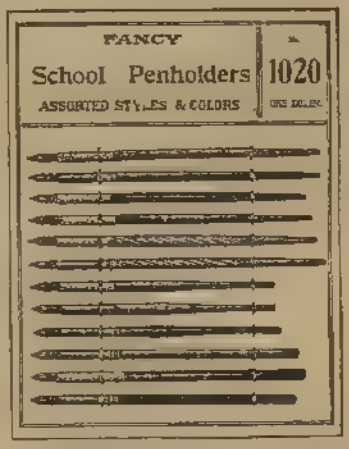
Per Assortment

No. 500—ASSORTMENT BLUE BRAND* STEEL PENS; Contains 4 Gross. Assorted, ½ Gross each Nos. 301 Bank, 302 Falcon; 303 Reliable, 304 Stub; 305 School; 310 Office; 312 Probate Stub and 313 Small Stub, Weight per assortment about 1½ lbs ... $5.00

PEN HOLDER ASSORTMENTS.





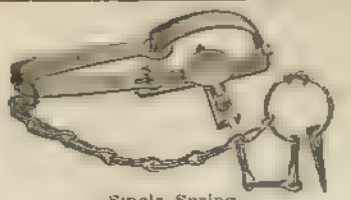


Per Gross

No. 1019—COMMERCIAL; TAPER; Wood; Assorted Styles and Colors, Black, Red and Plain Polished with Knurled Ends; on Cards, Nickel Fasteners, WITHOUT PENS; Weight per gross about 4 lbs. $10.00

No. 1018—COMMERCIAL; SWELL; Wood; Assorted Styles and Colors, Red Black and Plain Polished on Cards with Brass and Nickel Safety Fasteners, WITHOUT PENS; Weight per gross about 3 lbs. 9.00

No. 1020—FANCY SCHOOL; Wood; Assorted Styles and Colors, Red Black and Plain Polished, with Brass and Nickel Tips; on Cards COMPLETE WITH PENS. Weight per gross about 3 lbs..... ... . 4.50
One-twelfth Gross on a Card; One-half Gross, 6 Cards, in a Cardboard Box. Do not Break Cards.



Single Spring.

STEEL TRAPS.

Stamped from Sheet Steel.
Tempered Springs. Average
Length of Chains 20 inches.

Double Springs.

GENUINE NEWHOUSE.

Single Spring, with Steel Chain.

	Per Dozen
No. 0N—RAT OR GOPHER; Spread of Jaws 3½ inches; Weight per dozen about 6 lbs	$4.25
No. 1N—MUSKRAT; Spread of Jaws 4 inches; Weight per dozen about 9 lbs.	5.00
No. 1½N—MINK; Spread of Jaws 4⅞ inches; Weight per dozen about 13 lbs.	7.50

Double Springs, with Steel Chain.

	Per Dozen
No. 2N—FOX, Spread of Jaws 4⅞ inches; Weight per dozen about 17 lbs.	$10.50
No. 3N—OTTER; Spread of Jaws 5½ inches; Weight per dozen about 28 lbs.	14.00
No. 4N—BEAVER; Spread of Jaws 6½ inches; Weight per dozen about 33 lbs.	16.50

No. 4½N.

No. 6N.

Double Springs, with Steel Chain.

	Per Dozen
No. 4½N—WOLF; Spread of Jaws 6½ inches, with extra heavy Chain. Weight per dozen about 31 lbs.	$18.50
No. 4½N—WOLF; Spread of Jaws 8 inches, with extra Heavy Chain, Swivel, Snap and Pronged Drag; Weight per dozen about 98 lbs	40.00
No. 5N—BEAR; Spread of Jaws 11¾ inches, with heavy Chain, Swivel and Ring; Weight per dozen about 217 lbs.	120.00
No. 6N—BEAR; Spread of Jaws 16 inches, with heavy Chain, Swivel and Ring; Weight per dozen about 516 lbs.	280.00

HAWLEY & NORTON.

Single Spring, with Steel Chain.

	Per Dozen
No. 0HN—RAT OR GOPHER; Spread of Jaws 3½ inches; Weight per dozen about 6 lbs.	$4.25
No. 1HN—MUSKRAT; Spread of Jaws 4 inches; Weight per dozen about 9 lbs.	5.00
No. 1½HN—MINK; Spread of Jaws 4⅞ inches. Weight per dozen about 13 lbs.	7.50

Double Springs, with Steel Chain.

	Per Dozen
No. 2HN—FOX; Spread of Jaws 4⅞ inches; Weight per dozen about 16 lbs.	$10.50
No. 3HN—OTTER; Spread of Jaws 5¼ inches. Weight per dozen about 25 lbs.	14.00
No. 4HN—BEAVER; Spread of Jaws 6½ inches; Weight per dozen about 28 lbs.	16.50

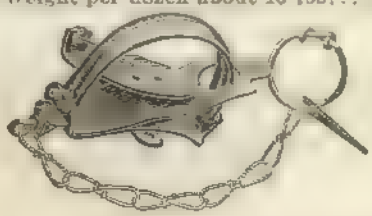
VICTOR, NEWHOUSE PATTERN.

Single Spring, with Wire Chain.

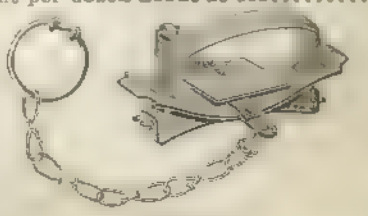
	Per Dozen
No. 0V—RAT OR GOPHER; Spread of Jaws 3½ inches; Weight per dozen about 6 lbs.	$4.25
No. 1V—MUSKRAT; Spread of Jaws 4¼ inches; Weight per dozen about 9 lbs.	5.00
No. 1½V—MINK; Spread of Jaws [illegible] inches, Weight per dozen about 13 lbs.	7.50

Double Springs, with Wire Chain.

	Per Dozen
No. 2V—FOX; Spread of Jaws 4½ inches; Weight per dozen about 16 lbs.	$10.50
No. 3V—OTTER; Spread of Jaws 5 inches, Weight per dozen about 25 lbs.	14.00
No. 4V—BEAVER; Spread of Jaws 5¾ inches; Weight per dozen about 28 lbs.	16.50



Single Spring.



Double Springs.

STEEL JUMP TRAPS.

Stamped from Sheet Steel; Tempered Springs; Average Length of Chain 18 inches.

Single Spring, with Wire Chain.

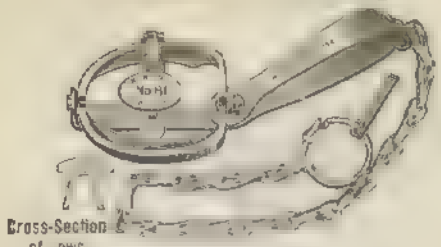
	Per Dozen
No. 0J—RAT OR GOPHER; Spread of Jaws 3½ inches; Weight per dozen about 5 lbs.	$2.90
No. 1J—MUSKRAT; Spread of Jaws 4 inches; Weight per dozen about 7 lbs.	3.25
No. 2J—MINK; Spread of Jaws 4⅞ inches; Weight per dozen about 7 lbs.	3.75

Double Springs, with Wire Chain.

	Per Dozen
No. 2½J—COON OR MINK; Spread of Jaws 5 inches; Weight per dozen about 9½ lbs.	$5.40
No. 3J—FOX; Spread of Jaws 5½ inches; Weight per dozen about 16 lbs.	8.20
No. 4J—OTTER; Spread of Jaws 6½ inches; Weight per dozen about 17 lbs.	9.20

Packed Loose.

COMBINATION STEEL TRAPS.



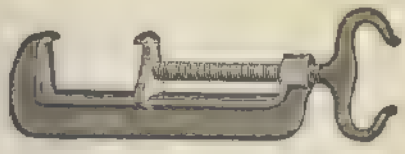
GENUINE NEWHOUSE
Single Spring, with Steel Chain

Per Dozen

No. 81—COMBINATION RAT, GOPHER, MUSKRAT OR MINK; Spread of Jaws 4 inches, with Webbed Jaws, which prevents the animal from gnawing off its leg and escaping; Weight per dozen about 10 lbs..... $5.50

Packed Loose

STEEL TRAP CLAMPS.



GENUINE NEWHOUSE.

Trap Setting

Malleable Iron, Natural Finish
Clamps for Setting Steel Traps

Nos.	4	5	6
Weight per dozen about, lbs.....	3	9	15
Per dozen $2.50		6.00	10.00

No. 4 is suitable for Traps smaller than No. 4½; Nos. 5 and 6 are especially adapted for large Bear Traps.

GOPHER TRAPS

Per Dozen

No. C—CALIFORNIA; 11 Gauge Galvanized Spring Steel Wire; Double Coiled End; Upper and Lower Sections Reinforced; Fitted with Tinned Steel Lever and 4 Sharp Pointed Prongs; Length over all 6½ inches, Width 2⅝ inches $4.00

Per Dozen

No. 1NG—NEWHOUSE; 1 inch, Natural Finish Stamped Spring Steel Body; 11 Gauge Steel Wire Ring, Diameter 2⅝ inches, Fitted with Flat Steel Lever and Three Prongs Securely Riveted; Length over all 6 inches.. $2.50

Weight per Dozen about 4 lbs. One Dozen in a Cardboard Box.

MOLE TRAPS.

REDDICK'S.

Per Dozen

No. RD—REDDICK'S, [illegible] inch Flat Tinned Steel Frame, 6 Tinned Steel Prongs 5½ inches Long, Steel Coil Spring, Painted Black; Length over all 24 inches; Width 3¾ inches; Weight per dozen about 42 lbs. $21.00

One-half Dozen in a Package.

head to fit counterbore and make the head cavity 2 25-32 diameter, to clear piston top end at top of stroke, all as in drawing herewith, shape of piston head top changed to cup, with deflector scoops in piston sides as long as head cavity permits, with only ⅛ head piston clearance. Last, place the spark plug in center of head, and carry spark points down in center of compressed charge mass in piston top cup, as nearly as may be. Having made these cylinder head and piston changes, again try the motor on the road. It should run well up to moderate speeds and should not four cycle until throttled very low

If the motor now begins to run pretty well, then make a new cylinder, changing the shape of lower part of cylinder to permit use of a piston ⅝ longer than that shown in drawing you send.

I do not know what effect the port opening at top piston position has, as I never saw it before.

The shape of piston head shown in sketch herewith will retain the charge in the cylinder. Before making a new cylinder cut the old cylinder exhaust ports 1-16 higher yet, making them 9-16 up and down dimensions, and again try motor on the road and see if the enlarged exhaust area gives better work, and if it does, make the new cylinder ports 9-16 high x 2½ inches circumferential extent.

While you are about it make the piston pin ¾ inch diameter with ⅝ hole all the way through it. If any of these changes are made we shall be glad to hear the results.—H. D.

BUILDING 4-CYLINDER SHAFT-DRIVEN MOTORCYCLE

[162.] I am in the auto repairing business here and at present having nothing much on hand am going to build me a 4-cylinder motorcycle of about 6 H. P. and would like you to inform me as to where I can buy such a motor built on the automobile plan, of about 2½ bore and 2½ stroke and of very light weight, air cooled If you can advise me on this I will appreciate it very much. What gear ratio would be necessary for a speed of about 70 miles per hour? Machine to be shaft driven with internal expansion clutch next to motor. 22-inch frame, 61-inch wheel base, 26-inch wheels, 2½-inch tires.

I would like to have you make some suggestion as to size of driving gears and propeller shaft, strength of frame and would you prefer wire wheels to Sarven wood wheels?

Would an ordinary coaster brake hub stand the side strain a bevel gear would give?

CARTERVILLE, MD. S. L.

I do not know of any 4-cylinder motor on the market of the dimensions you require. The Pierce Cycle Company, of Buffalo, N. Y., are making a motorcycle with a motor of practically the same dimensions as you require, but I do not know as you would be able to get a motor separately from them.

According to the horse power rating of the A. L. A. M. your motor would develop 10 H. P., and the gear ratio of 2 to 1 could be used. This would mean about 1850 revolutions per minute of the crankshaft for a speed of 70 miles per hour. A driving gear of 4 inches and propelling shaft of ⅞ inch in diameter would be strong enough

I would not recommend a coaster brake of any kind for a machine as powerful as this. A good band brake is preferable and wire wheels are stronger than wooden wheels, weight for weight.—C. H. M.

COUPLER FOR ATTACHING BICYCLE TO MOTORCYCLE

[167.] I would like to ask for information concerning an idea of an attachment for connecting a lady's bicycle to the side of a motorcycle. This would be a good seller, as it could be taken apart and kept in the house more easily than an auto. Do you know of any firm that would make and design such a connection? The Apache people, Denver, Colo., make a side buggy, as I see in your journal, the weight of the whole complete being 300 pounds. A lady's wheel is only about 20 pounds, so you see by putting them as close together as possible it would not be too much for an ordinary cycle motor. Of course it would require a differently designed truss or brace

ALTOONA, PA. W. M. SHERBAHN

We know of no American concern which makes a connection by means of which a lady's bicycle can be attached to a motorcycle. There are various side-cars and fore-cars which convert the motorcycle into a passenger carrying vehicle. In this case the lady or other passenger occupies a chair or seat. Such a coupler is made by The Telco Co., 147 Shooter's Hill Road, Blackheath, S. E. London, England.

—TECHNICAL COMMITTEE

PATCHING MOTORCYCLE INNER TUBES

[165.] Will patches hold on tubes of motorcycle tire if non-skid shoes are used.

PITTSBURGH, PA. G. J. H.

Patches will hold when placed upon the inner tube of tires using a non-skid shoe in a fairly satisfactory manner but there is nothing certain about them. There is only one sure way the patch will stick and that is to have it vulcanized. This is owing to the greater heat which is developed when these shoes are used. We would advise you to make a temporary repair on the road whenever necessary but to have the patch vulcanized when you return home.—TECH. COMM.

Answers to Motor Cycle Questions by the Technical Committee, New York Motorcycle Club

(We desire not only our readers to make full use of this department, but any one who disagrees with the opinions herein expressed.)

4-CYCLING OF 2-CYCLE MOTORCYCLE ENGINE

[150.] Will you kindly check over the dimensions as shown on the accompanying blueprint and give me your opinion as to the cause of my trouble, viz.: Four cycling either running light or under load? I have experimented with four engines with practically the same results in each. The engine is 2¾ inches x 2¾ inches two port, two cycle, for motorcycle use, but it will not two cycle steady except when pulling hard on an up grade. The mixture is fed to the transfer port through a ⅝ inch mixture valve. The valve is a trifle heavy but no adjustment or lift or spring tension effects any permanent improvement.

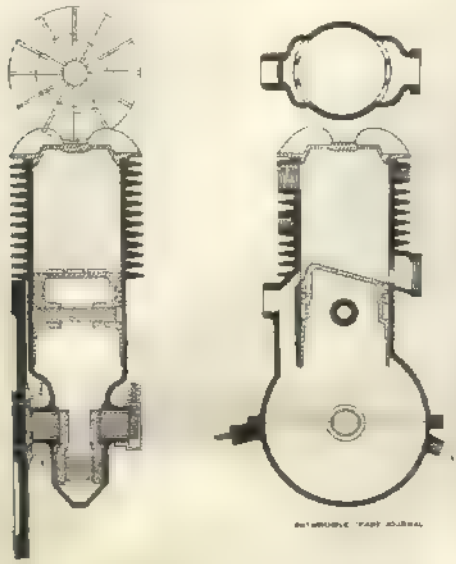


Fig. 1. Sectional drawings of Ide 2-cycle motorcycle engine.

The engine is very sensitive as to mixture. On the level it will run with careful adjustment of needle valve for perhaps ¼ of a mile before beginning to four cycle. I can then close needle valve entirely, when engine will continue to run perhaps ⅛ of a mile, still four cycling, until it stops for lack of mixture. I can now open valve and restart with engine two cycling only to repeat the performance. Any adjustment of mixture, no matter how lean, that will allow engine to two cycle at all will eventually lead to four cycling. I have tried a float feed automatic carburetor with check valve with same results. The trouble is apparently not due to undercharging at high speed as engine will still four cycle with spark somewhat retarded and at moderate speed. As originally designed the exhaust port had a lead of about 3-16 inch over the intake. This was increased to ⅜ inch with some improvement.

All experimenting was done without a

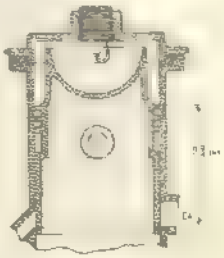


Fig. 2. Suggested change in piston design and spark plug location.

muffler, exhausting directly into the air. The points of spark plug come back of deflector, on upper center. The base compression is good as clearance has been reduced to a minimum.

Any criticism or hints that will aid me in locating trouble will be greatly appreciated. BURT B. IDE

Far as I know, 4-cycling of a 2-cycle motor always comes from undercharging.

Your piston opens the exhaust port to the crank box at the top of the stroke. Owing to the shape of deflector and top of piston and very small circumferential port extent, lessened by 2 bridges in each port, the exhaust is hindered, and the deflector form together with imperfectly cleared cylinder at time of intake cause the charge to escape through the exhaust port before the exhaust port closes on the up stroke.

Cylinder compression is very low.

Believing that the exhaust is hampered by the outside exhaust pocket I would advise cutting the exhaust pocket walls and the threaded exhaust pipe nozzle entirely away, first thing, leaving the exhaust ports wide open to atmosphere by cutting the pocket wall down to even with the bottom cooling rib. Then try the motor again on the road and see what effect, if any, is produced by this freeing of the exhaust.

In my opinion the piston is ⅜ inches too short on bottom and you cannot increase this length because you have no cylinder room at bottom end of piston, therefore, leaving piston bottom end as it is, I should say counterbore your cylinder at head end ⅛ on a side, ¼ total, to 3 inches diameter by ⅛ up and down, make a new cylinder

THE NEW GREYHOUND MODEL OF THE AUTO-BI COMPANY

The Auto-Bi Company, Buffalo, N. Y., announces an entirely new model for 1909 called "The Greyhound."

One of the startling improvements on this model is a shock absorber, which allows the use of the ordinary rigid frame construction and without interfering in any way with this is claimed to give the benefit of a spring frame without any disadvantages, such as loose frame parts, trouble in keeping spring frame in alignment, variable belt tension, strain on motor, etc. The Greyhound shock absorber keeps the rider suspended on springs in practically a stationary position, the machine itself getting the jolts from rough roads, etc. This is one of the most distinctly practical improvements ever made looking toward the comfort of motorcycling, and will no doubt be appreciated by the public.

This machine is equipped with new truss spring forks of very solid construction, utilizing the leverage principle in order to get a very wide range of frame movement with a narrow range of spring movement. Each inch of spring compression gives two inches of vertical frame movement to absorb vibration caused by rough roads, etc.

The principle of the well-known Auto-Bi chain belt drive has been retained, but its construction is very much heavier and more substantial to allow for increased power of motor. Belt is guaranteed for 3,000 miles.

A new timer of very simple construction is used which is absolutely dust-proof. A very simple and silent muffler is fitted direct to the engine with a foot-operated cut-out attached. Clincher tires 2½ in. in diameter, and steel rims are used. The finish is silver gray throughout. Mud guards are extra wide. Handle-bars are of new design, which is neat in appearance and gives the rider a position which does not tire the wrists.

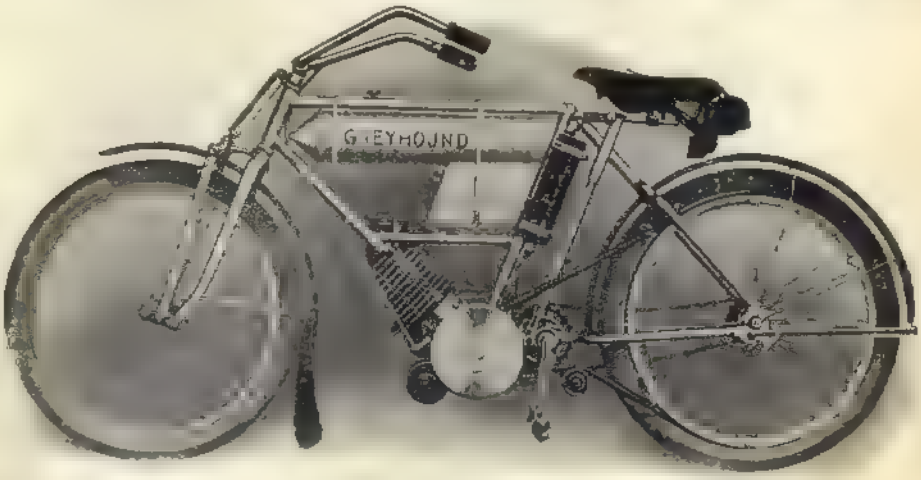
An oiling device is arranged so that oil may be fed while riding constantly or intermittently in any quantity either to the cylinder or the crank base. The Auto-Bi carburetor is fastened direct to the head of the motor and acts as a retaining clamp for the inlet valve.

A stand of durable construction is fitted which attaches to a special lug on the rear fork end and is not connected in any way with the rear axle. This allows of removal of rear wheel without interfering with the stand attachment.

The motor is equipped with an auxiliary exhaust port, this company, we understand, being the only American company equipping their stock machines in such manner. The motor is rated as 3 H. P. Equipment includes an extra large saddle. Gasoline capacity is 6 quarts.

Crank shaft is a one-piece solid steel forging, hardened and ground. Connecting rod is phosphor bronze, and can be adjusted without removing motor from the frame. Cylinder and head are cast in one piece.

Particular attention has been paid to every detail and the numerous small points which in the past have been annoying by the very fact of being so small. One of the important detail features is a flusher tube loosely connected to the head of the motor allowing an instantaneous flushing of cylinder and easy starting, no matter how cold the weather is



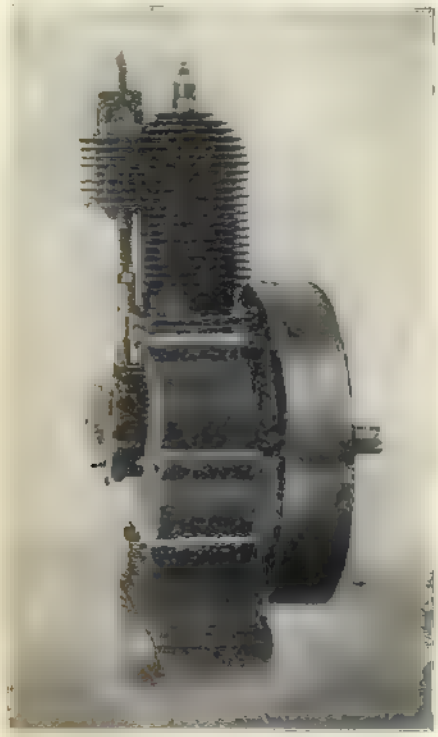
The "Auto-Bi Greyhound."

Two N. S. U. side cars made a very creditable showing in the Autumn Quarterly trials held in England recently. It is said that this is the first time in the history of these trials that passenger machines came through without trouble.

CLIMAX MOTORS

Climax Electric Works, New Salem, Mass., are putting out a line of air cooled motors suitable for motorcycle, automobile and marine use. Three sizes are made, 1½, 3 and 4 H. P., the 3 H. P. motor being shown herewith. This size has a 3 x 3½ cylinder, is 16 inches high and weighs, with aluminum crank case, 40 lbs.; with iron crank case 49 lbs.

The cylinders of Climax motors are cast with integral flanges of a special iron which is said to possess exceptional radiating qualities and, having a very fine grain, takes a smooth finish and holds compression well. Three piston rings are fitted



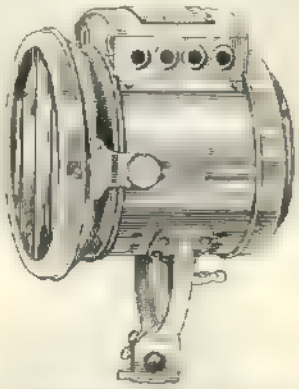
The "Climax" 3 H P motor for motor cycle, automobile and marine use.

Crankshafts are of steel of one-piece construction and connecting rods are cast from bronze. The crankshaft bearing of the connecting rod is adjustable. Gears are cut from solid blanks. The large gear, the exhaust cam, the spark cam and the shaft connecting them are all machined from a solid piece so that there is no possibility of these parts working loose. Care has been taken to guard against wear as much as possible and to provide for taking up wear where it cannot be entirely eliminated. For example the exhaust cam is exceptionally large and the length of the exhaust valve stem is adjustable. Hence when wear occurs the cam may be ground to shape again and the valve stem lengthened. Price of the 3 H. P. engine, including spark plug, is $42 with aluminum crank case and $40 with iron case. Spark coil, 4 dry cells, generator valve, primary wire and secondary cable are furnished for $6 if ordered with the engine.

The 1½ H. P. motor lists at $27. It has a 2¼-inch bore and a 2½-inch stroke. Its height is 14 inches and the weight 22 lbs A complete set of castings of this motor is furnished for $7 with aluminum crankcase or $5 with iron crankcase.

20TH CENTURY HEADLIGHT FOR MOTORCYCLES

The 1909 line of 20th Century lamps includes an attractive headlight for motorcycles which is provided when desired with a bracket similar to the swivel brackets of automobile searchlights as illustrated. This style is listed as No. 100 and can be purchased separately for $7.50 or with generator and bracket at $12.50. The



New "20th Century" Motor Cycle headlight.

20th Century assortment of brackets includes those for all makes of motorcycles so that these lamps can, by selection of the proper bracket, be fitted to any machine. Lamp No. 101 has the attaching fixture at the back but is otherwise the same as 100, both in design and price. These lamps are the product of the well-known 20th Century Mfg. Co., of 19 Warren street, N. Y. City.

The Reed Cycle & Motor Co., which conducted a motorcycle and bicycle agency in Miami, Fla., has discontinued business. Mr. Reed has gone West, where he will take a position with a prominent motorcycle manufacturer.

Charles Weatherhead, R. F. D. carrier No. 7 of Elkart, Ind., is another one of the many rural mail carriers who finds the motorcycle the best means of all for assisting him in making quick deliveries. His route is nearly twenty-seven miles long and in all there are 125 stops. Recently he traveled the entire distance, making eighty-two stops, in one hour and thirty-four minutes.

the spark is at once recognized. A spark gap provided to safeguard the secondary winding is ingeniously utilized to indicate and locate trouble. A small glass window at the top of the magneto will show a spark whenever there is trouble; when it shows no spark it proves that the trouble is with the fuel and not with the ignition. If a spark plug is in trouble this indicator also locates the defective one without removal of the plugs.

To stop a motor it is better to cut off the ignition rather than throttle the gas. That will keep the cylinders charged with an explosive mixture; consequently a short cranking only will cause ignition; as the magneto sparks at as low as 40 revolutions per minute, this cranking is easy for even a fairly large machine. A screw-head is provided at the magneto for a cable leading to the push-button at the dash for this ignition cut-off

The care of the Hess-Bright magneto is very simple; an occasional drop of oil, a few times a month, to only two holes, and about twice a season a little grease to the distributor pivot is all the attention needed.

Annular ball bearings (Hess-Bright) are employed for the armature. The head and cover at the distributor side are of high grade hard rubber. The permanent magnets are of generous proportions and of a special steel treated by a new process that ensures that permanency and uniformity of magnetic flux which are absolutely essential to the uniformity of sparking.

FIRESTONE TIRE WITH UNIQUE NON-SKID TREAD

One of the most remarkable non-skid tires ever put on the market is that which is being manufactured by the Firestone Tire & Rubber Co., of Akron, O. It is called the "Firestone Non-Skid," which name is placed in raised letters around

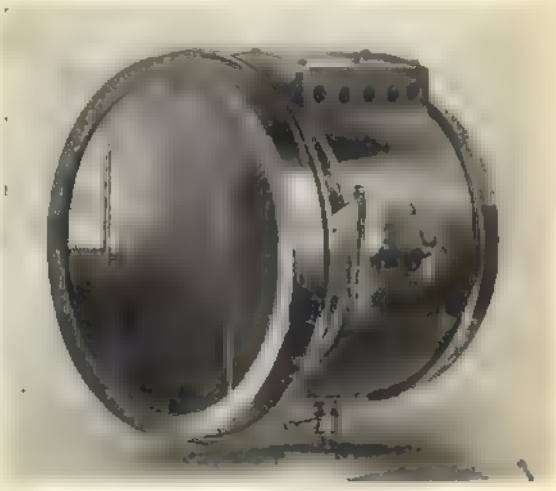
Firestone Tire with raised letters for a non-skid device

the body of the outer tire casing. Thus the name itself prevents the car from skidding

Persons who have seen this tire in action declare that it is a very near approach to a perfect non-skid tire. It has been tried out many times and is said to have proved satisfactory in every respect.

"ATLAS" MIRROR LENS HEADLIGHT

By the use of a wrong cut in a description we published in our November number we illustrated a lamp made by New York Auto Lamp Co., 585 Washington street, New York City, but described another style of lamp made by this company. To set the matter straight we are therefore illustrating the headlight which we meant to show in the November number.



The "Atlas" Headlight.

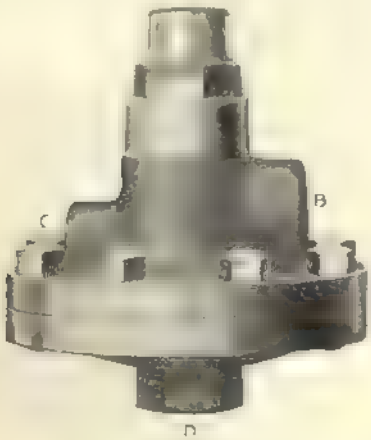
This lamp is one of the handsomest headlights on the market. It is made of heavy guage brass, finely finished and polished. It has lens mirror, sectional glass, adjustable burner, and the chimney and body is in one piece, doing away with side seams and rivets. This adds to the strength as well as the appearance, and makes it very easy to polish and keep clean. This lamp is made in 6, 7, 8 and 9 inch sizes, listing at $8.50, $9.00, $11.00 and $15.00.

Walker's New Steam Appliances

The E. C. Walker Mfg. Co., 811 Nelson St., Louisville, Ky., who offer a complete line of up-to-date steam car appliances, have brought out a new design of steam condenser and a new automatic water regulator for use with flash boilers.

The New Walker Condenser

The accompanying illustration shows this new type of condenser which is of the flat type and contains an unusually large radiating surface. The tubes are flattened so that the steam is separated into thin sheets and said tubes are so spaced that full circulation of air between the tubes is afforded. The tubes being verticle are claimed not to clog with oil which may be entrained in the exhaust steam. These condensers are furnished in any size desired.



The Walker Water Regulator

The Walker Automatic Water Regulator, here illustrated, is for use with flash boilers. This device is an automatic by-pass valve of the diaphragm type. It is governed by the steam pressure and can be adjusted to by-pass the water from the pumps at any pressure desired. The cap A is removable in order to make adjustment for different pressure and when once adjusted, no further attention is required.

From a T in the water delivery pipe, a pipe connection is made to the regulator at B. From the outlet C, pipe connections are made either back to the water tank or to the suction pipe of the water pump. The steam pressure connection is made at D by means of a water trap or siphon to prevent the diaphragms from becoming overheated, as would be the case were no trap used.

The manufacturers of these appliances also offer a new automatic fuel regulator which may be successfully used on any steam car for regulating the fuel supply to the burner. This fuel regulator is of the diaphragm type and embodies some new features not hitherto employed. It has no stuffing boxes to cripple the action of the valve which is of the floating type. It is easily and quickly adjusted by the use of a wrench and adjustment may be made while steam is and the fire is burning. This fuel regulator is guaranteed to act within of variation in pressure and can be furhished for any pressure up to 800 pounds.

The "Bonney" Portable Automobile Vise

The accompanying cut shows the Bonney portable automobile vise, brought out by the Bonney Vise and Tool Works, 3011-3015 Chestnut street, Philadelphia, Pa., to meet the demand for a neat, serviceable vise, large enough for moderate sized work, yet small enough to be carried in the automobilist's tool box.

A feature of this vise which makes it particularly useful to the automobilist is that it can be instantly clamped on the running board and as quickly detached.

The "Bonney" Portable Automobile Vise.

Size No. 115, here illustrated, is suitable for a medium sized car. Other sizes are made with from 1½ to 3 inches width of jaws. All of these vises are manufactured with a solid steel front jaw, and the screw is made from bar steel. This firm also makes a specialty of a heavy, strong, machinists' vise with a swivel base suitable for private garages.

Brown Air Compressor

An air compressor for garage use was recently placed on the market by E. G Brown Beer Pump Co., 9-13 Chardon street, Boston, Mass., a special feature of which is a controlling attachment for automatically maintaining a pre-determined pressure on the comprest air tank.

The "Brown" Air Compressor for garages. It is fitted with a device for automatically maintaining a pre-determined pressure on the comprest air tank

The controlling device is shown in the illustration setting on the base between the motor and the cylinders. In this device the air pressure acting upon a diaphragm operates a switch directly, making the electrical parts very simple indeed.

The cylinders of the compressor are iron and the valves are all standard metal insuring its durability and long life. The cylinders are air cooled. The compressor is driven by an electric motor mounted on the same base. The automatic pressure regulating device is of great value as the pump is started as soon as the pressure in the tank is reduced below the desired point and stopt again as soon as the desired pressure is again obtained. It thus requires no attention except an occassional oiling. It maintains pressure up to 150 lbs

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Archer, Combs & Winters Co. is the name of a new corporation at Portland, Oregon, who are jobbers of automobile accessories, fishing tackle and sporting goods. The members of this firm have a wide acquaintance with the trade in Oregon, Washington and Idaho, having been connected with similar wholesale lines for a number of years. They control a number of lines for the above mentioned territory as manufacturer's agents.

New Agencies

In Jacksonville, Florida, Messrs. Atkinson, proprietors of the Fire Proof Garage will handle the Rambler cars

The Chadwick "Great Six" will be handled in Pittsburg by A. G. Summerville with garage and show rooms at 4514 Henry street.

A. G. Southworth of New York, agent for the Pope-Hartford car has taken in addition the agency of the Matheson.

The Logan commercial cars and semi-racer runabout will be represented in Rochester, N. Y., by Mr. A. Vernon Hart, one of the best known dealers of that city

Walter J. Durant has opened an up-to-date garage and supply house on Railroad Avenue, Iberian, Louisiana.

The new garage of O. G. Roberts, between Seventeenth and Miami Avenues, on Bay Street, Columbus, Ohio, has just been completed. It is of cement block and occupies nearly the whole of a lot 102 x 150 feet. It is fireproof and has a double entrance.

The Bruns Automobile Company of Bedford Avenue, Brooklyn, have taken the agency for the Reliable Dayton.

The following are new agencies for Jewel automobiles: Jewel Automobile Company, 210 Temple Court, Denver, Colo.; J A. Lorry, Rock Rapids, Iowa; Wm. Tobiason, Decorah, Iowa; L. N. Simon, Goff, Kansas; Harry Humfreville, Waterville, Kansas; Edward C. Hubert, New Orleans, La.; L. E. Gordon, Deer Lodge, Mont.; M. J. Cook, Holland, Mich.; Boyce Carriage Co., 324 Ross Ave., Winnipeg, Man. Canada; O. C. Sagmoen, Crary, N Dakota; M. A Grant, 1016 Prairie Ave., Houston, Texas, Herman F. Gerhard, Austin, Texas; C. H. Dean, 226 S. Flores St., San Antonio, Texas, Ray-Wortham Co., 609 Throckmorton St., Fort Worth, Texas; Auto Service & Motor Co., 19th St., Cheyenne, Wyo.; Coatesville Carriage Co., Coatesville, Pa

The Auburn will be represented in Eastern Pennsylvania and Delaware during the season of 1908 by Howard W Trump who will open a garage on Broad Street, Philadelphia. He has just received first carload of Auburns.

The Hamilton Hall Co., 1667 Broadway, N Y., has just taken the agency for the Aerocar Motor Co

The Consolidated Motor Car Company, 402-406 Golden Gate Avenue, San Francisco, Cal., has taken on the Franklin line and will be an exclusive Franklin dealer.

The Brown Brokerage Company of Coffeeville, Kans., has taken on the Franklin line It will also handle the Buick, and has a splendid new modern salesroom and garage of concrete and brick—60 x 175 ft. The machine shop is well equipped.

W B. Jernigan of Pine Barren, Fla., will open a garage and salesroom at Pensacola and will handle the Franklin line exclusively

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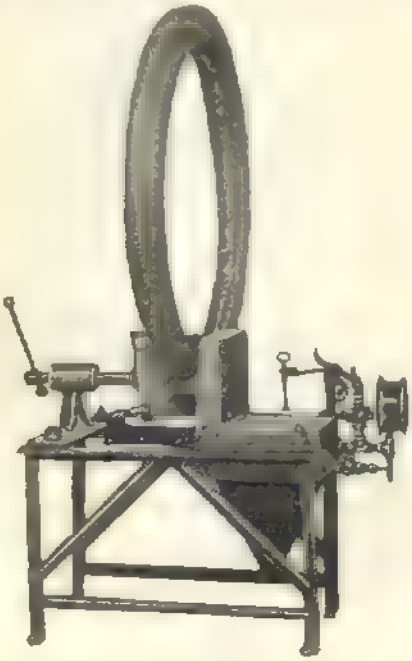
Mr. Boyer, formerly of the Boyer Motor Car Co., is identified with its successor, the Consolidated Motor Car Company, San Francisco, and will continue as heretofore a leading factor in the selling end.

Elkhart Garage Co., 200-202 Main Street, Elkhart, Ind., recently equipt club rooms for the Elkhart Auto Club which were formally opened on Wednesday evening February 5, and the celebration brought together a large number of prominent automobile and good roads men of Elkhart, Chicago and elsewhere. The use of the club rooms is free to local and traveling automobilists. The club has started out with great enthusiasm and expects to take part in good roads, movements and other widespread efforts at reforms of benefit to motor car users.

The Corp Adjustable Vulcanizer

After ten years' experience in vulcanizing tires, Corp Bros. Co., of 31-35 Sabin St., Providence, R. I., some time ago designed a vulcanizer for its own use, patterned to meet requirements as found in its experience. This vulcanizer attracted attention and a number of orders for similar vulcanizers were obtained and the company went into the business on a larger scale, and is now offering its machines to the trade generally. The main feature of this vulcanizer is the adjustability of the jaws. The fact that new tires vary in size and that tires get stretched in use make the adjustable feature of this vulcanizer very important. It is very simple in construction, as will be seen by reference to the accompanying cut, consisting mainly of a pair of hollow jaws, which are filled with steam from a conical boiler, the latter



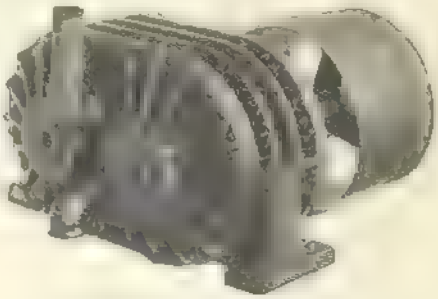
The Corp Adjustable Vulcanizer.

being a part of the stationary jaw. The movable jaw is connected by a flexible steel tube to the boiler. A gas or gasoline burner is used with the steam generator, and although not shown in this cut, it is included with the vulcanizer. A steam gage and safety valve also go with the outfit. Tubes can be vulcanized on the top of the boiler which is planed off smooth, and suitable clamps are furnished for this purpose. Tubes can be vulcanized at the same time a shoe is being vulcanized. Any make of moulds can be used with this vulcanizer. The price complete is $40, and moulds are furnished at from $5 50 for 2½ in. tires to $14 for 5 in. tires.

The Dickerson Rotary Air Compressor

A rotary gear type air compressor, admirably adapted to garage use, is offered the motor car trade by Malcolm G. Dickerson, 116-120 Market street, Newark, N. J., who claims for it not so much the embodiment of many good features as the absence of bad ones, his aim apparently being to produce a simple and efficient device calculated to give long-continued, satisfactory service without requiring much attention.

The gear teeth are cut involute and are said to be free from back lash.



The Dickerson Rotary Air Compressor.

A free running fit is provided in the twin cylinder and heads. The packing is a liquid of good lubricating quality, having high and low temperature values. This packing is admitted continuously in small quantities, and is sufficient at all times to cover the working parts with a thin film, serving the dual purpose of lubricant and packing.

A receiver tank is provided for the purpose of holding the air and collecting the oil that is carried out of the compressor with the air; this oil gravitates to the bottom of the tank and is carried back to the compressor under air pressure, through a small pipe from the bottom of the tank. A continuous circulation of the packing lubricant is thereby automatically maintained. As considerable oil may be placed in the tank, it becomes at once the reservoir for both air and oil.

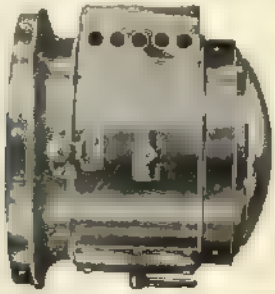
High grade ball-bearings are used, consequently no wear can take place between the revolving gear and the cylinder surfaces. The ends of the gear and heads having slight clearness, the end pressures are balanced and kept tight with oil under pressure, and it is therefore evident that little wear can occur.

The recent inaugural dinner of the Bergdoll Motor Car Company, Philadelphia, held in its new building at Wood and North Broad streets, brought together about 200 prominent automobilists.

Automobile dealers who participated in the recent show week in Indianapolis are well pleased with the results, many sales having been made. The demand for cars in the rural districts is reported unprecedented.

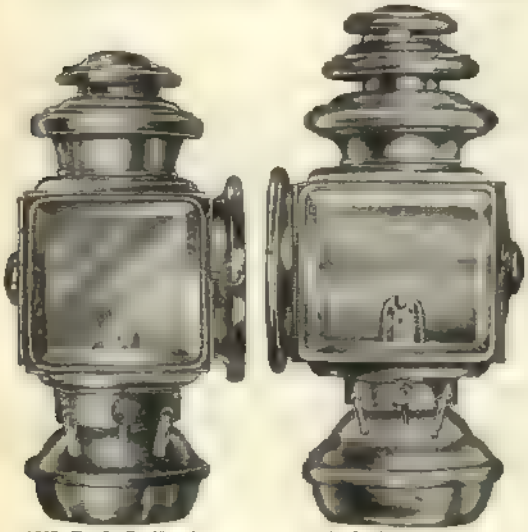
1908 E. & J. Lamps

Among the new designs shown in the 1908 catalog of the Edmunds and Jones Mfg. Co., of Detroit, Mich., is their No. 166 headlight, here illustrated. This headlight is 7½ in. across the flange, 7¼ in. long, 7½ in. high and is fitted with a 6-inch mirror. The price is $15. The same style lamp is furnished in four other sizes with



1908 E. & J. Model 166 Headlight

6, 7, 8 and 9⅝-inch mirrors respectively, the prices being $17.50, $20, $25 and $30 These headlights are furnished with sectional glasses so that in case of an accident to the mirror lens or front glass it is easily removed. They also furnish this style of headlight with one-piece plate glass at a lower price. In the line of side oil lamps the Edmund & Jones Company are offering two new designs, one for medium weight touring cars and limousines

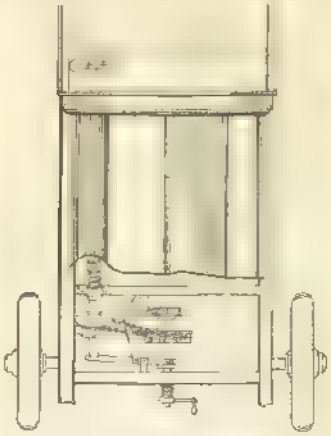


1908 E. & J. No. 3 Side Oil Lamp. 1908 E. & J. No. 4 Side Oil Lamp

and the other for runabout and motor buggy cars. Model 4 side oil lamp is made in one size only, 12 inches high, with a 4⅝ in. by 4¾ in. body. It lists at $8.00. Model No. 3, which is made expressly for runabouts and motor buggies, is 10¼ inches high, with a 4x4-inch body, and lists at $6.00. This model is also made with square body, known as Model No. 3-A, and listing at $5.50.

The Adams Engine Starter

A new device for starting gasoline automobile engines was recently placed on the market by the Adams Motor Car Starter Co., 86 Bowen Ave., Chicago, Ill. This device is arranged so that the operator of the car can start the engine from the seat by turning a small hand wheel, which is shown in the accompanying illustration. Before turning the wheel it is prest downward and by a system of levers the starting handle is thrown into connection so that by turning the wheel a sprocket on the other end of the column to which the wheel is attached is revolved, in turn re-



The Adams Engine Starter.

volving another sprocket on a small shaft which connects with the engine shaft by a ratchet and dog arrangement. Should the engine back-fire, the connection is broken, and no harm can come to the person operating the starter. The usual starting handle can be used if desired in the regular way, but cannot kick back and thus do injury to the operator, as the connection is broken as soon as the engine back-fires. The Adams starter has few parts, and these are simple, and it is applicable in any make of car.

The Winton $2,500 contest for chauffeurs closes July 1. Sixteen-Six drivers may enter any time previous to that date, the only requirement being a minimum of 3,000 miles traveled prior to the close of the competition.

A Franklin 28 H. P. motor car recently made a 440-hour non-stop run at Cincinnati, which included road running every day and idle running in the garage at night. Daily runs were made of from 250 to 300 miles each. On three successive days the car was driven to Columbus and return via Dayton and Springfield, a distance of over 250 miles. Three thousand, three hundred and twelve miles were run on the road, and an average of 25 gallons of gasoline and 2¼ gallons of oil were used per day.

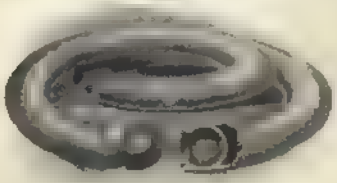
G & J MOULDED TREAD MOTORCYCLE TIRE

The G & J Tire Co., of Indianapolis, Ind., promise some surprises in their 1909 motorcycle tire line, the most important feature of the new line being the new Indianapolis G & J moulded tread tire. Although this company has had over seven years' experience in the manufacture of motorcycle tires it tried out this new moulded tread tire over a year before offering it to the trade.

The Indianapolis G & J Moulded Tread Motorcycle Tire.

This tire is made in the shape it assumes under inflation, making it very easy to apply to or remove from the rim. It is built for both strength and resiliency. Though made with the G & J double clincher feature it will fit either single or double clincher rims.

The G & J socket joint inner tube is another interesting feature of the G & J 1909 line. The accompanying illustration shows the manner in which the ends of this tube



G & J Socket Joint Inner Tube

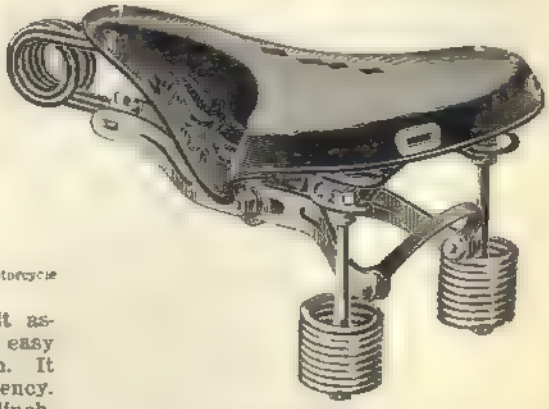
fit together. Like other tubes of this type it is designed to permit removal in case of puncture without taking the wheel out of the frame. This tube has been carefully tested and there will no doubt be a strong demand for them among the riders.

The G & J Tire Company who are among the oldest motorcycle tire manufacturers in the field, have taken a great deal of interest in the motorcycle game and have brought out many improvements in tires and tire accessories in the past few years. The double clincher tire and hollow reinforced rim for motorcycle use was developed by the G & J Tire Company. The G & J double clincher rim not only possesses sufficient strength to meet severe strains, but holds the tire on firmly when skidding or making sharp turns at a high rate of speed.

THE "EAGLE" MOTORCYCLE SADDLE

The accompanying cut shows the Eagle motorcycle saddle, manufactured by the Troxel Manufacturing Co., of Elyria, Ohio, and which is the result of a thorough investigation of what is most needed by the motorcyclist.

The cushion springs fitted are said to give gently on rough roads, eliminating all sudden bumps. The seat is made of the



The "Eagle" Motorcycle Saddle.

finest imported leather. The trusses are made of steel stampings as is also the universal clamp, which is so constructed that it is impossible for the saddle to turn or twist on the post. This saddle is guaranteed to afford the rider the lowest possible position on the motorcycle. The length of the saddle is 13¼ inches, and the width 12 inches. The saddle is furnished with black enameled springs, regular equipment, although polished nickel plated springs will be fitted at an additional charge.

The Hendee Mfg. Co., of Springfield, Mass., manufacturer of the Indian motorcycles, has become possessed not only of its splendid factory building in Springfield, but has acquired the land on which the property stands, and in addition all of the surrounding real estate which will permit of building further additions. An addition will be erected. It is to be of the same style of architecture as the present building and when completed will make the dimensions of the factory 285 feet long by 50 feet wide, each of the four floors being devoid of obstructing posts and affording a clear view from end to end. An L, 50 x 50 ft. will also be added and will be used for stock and tool rooms and for other non-productive departments

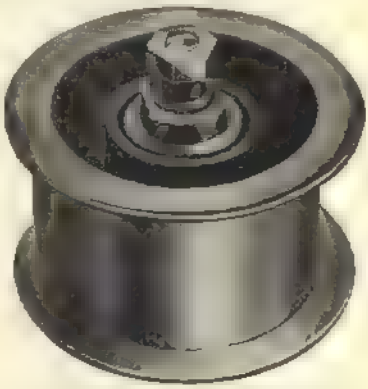
The "Erie" 2-Cycle Bicycle Power Attachment

One of the chief features of the latest "Erie" bicycle attachment is the fact that the motor is of the 2-cycle type, which, because of its lightness and simplicity, makes it an ideal means for converting the ordinary bicycle into a power-driven machine. This attachment is the product of the Motorcycle Equipment and Supply Company, 3 Lake St., Hammondsport, N. Y., and is sold either separately, all ready for attaching to the bicycle frame, or in the shape of a complete motorcycle. The attachment fits any size or make of frame and is attached without a particle of alteration to the bicycle frame, except slightly bending the narrow makes of cranks. The Erie attachment gives a speed of from 4 to 30 miles, and is controlled by means of one lever, the movement of which increases or decreases the speed as desired. The tank is made of heavy tin and holds gasoline for 80 to 110 miles, and enough oil for 100 to 150 miles. The battery case is made to hold three standard dry cells. The drive is by the Erie flexible waterproof, gray, tanned V belt, which is constructed on an entirely new principle that makes it extremely tough. The attachment complete lists at $90, which includes motor, clamp and pulley, coil, switch grip, muffler, carburetor, control lever, tank, battery box, belt, 3 batteries, oiling device, cocks, and, in fact, every part of the complete motorcycle except the parts represented by a bicycle. The motor alone, without accessories, lists at $55.

This concern also furnishes complete motorcycles on which this power outfit is used. Their Model I lists at $150. For those wishing a heavily built motorcycle for rough use, they offer their three horsepower special, which lists at $175 complete.

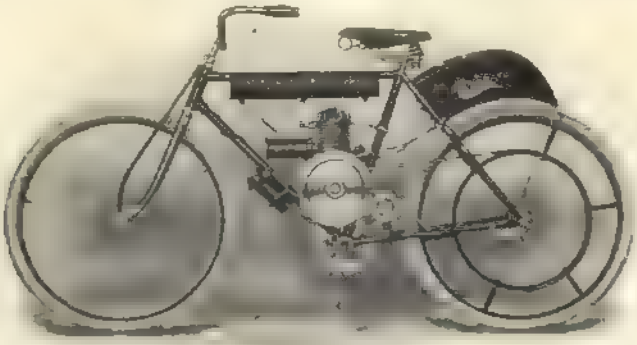
The "Eclipse" Belt Pulley Idler for Motorcycles

The accompanying cut shows the Eclipse belt pulley idler for motorcycles, manufactured by the Eclipse Machine Company, Elmira, N. Y.



The "Eclipse" Motorcycle Belt Pulley Idler

The manufacturers also furnish other motorcycle specialties, such as coaster brakes, hubs, head sets, etc. The pulley is also made with a V-shaped groove when desired for use with a V-shaped belt.



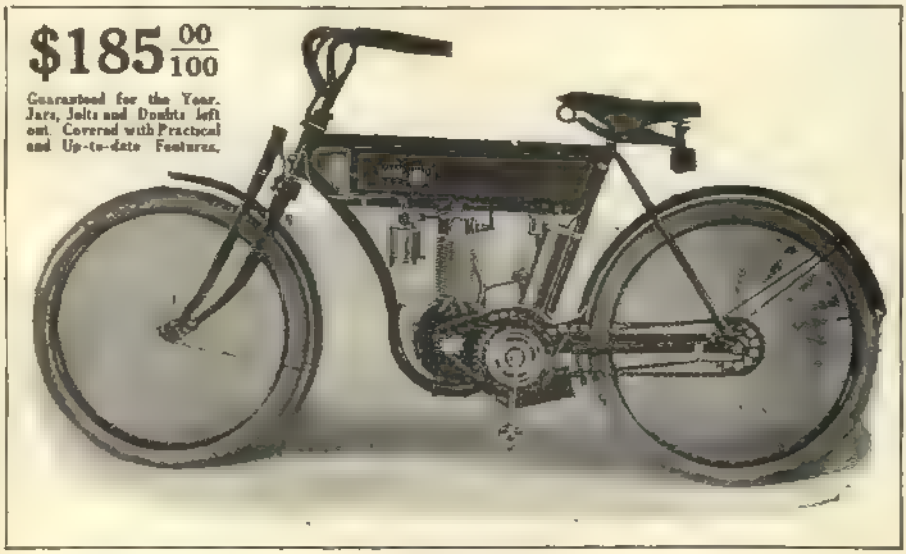
The "Erie" 2½ H. P. two-cycle bicycle power attachment

Motor used in the new "Erie" 2-cycle motorcycle outfit

A 1902 Indian Motor Cycle made by Hendee Mfg. Co. of Springfield, Mass., recently won the hill climbing championship, of New Zealand, Australia, at Christ church. This machine has won this contest four years in succession against representive motor cycles from all parts of the world. At home the Indian is also distinguishing itself being the winner of the 104-mile endurance contest recently held in Alabama. This machine was ridden by Robert Stubbs of Birmingham and covered the run in 5 hours 22 minutes, actual net running time. It made all but one of the eight controls on time and three punctures in the last 8 miles caused the delay in reaching the last. Six creeks without bridges were crossed, the water at times coming up to the gear case.

The Man Who Pays

wants the **BEST** his **MONEY** will buy. That's the reason so many purchase the Model A "Light" Motorcycle; it costs but **$185.00/100**. Its value is $210.00/100. There is satisfaction in saving $25.00. There is greater satisfaction in knowing you have purchased a motorcycle of quality, — one that is positive in its action, simplicity in its arrangements and operating power, and speed that more than satisfies. Guaranteed for the year.



MODEL "A"

AGENTS WANTED THROUGHOUT THE WORLD

CATALOGUE AND TERMS UPON REQUEST. Address Motorcycle Dept.

THE LIGHT MFG. & FOUNDRY CO.

HANOVER & 4th STS., POTTSTOWN, PA.

One of the most dignified catalogs of motor car supplies has just been issued by the Motor Car Equipment Co., 55 Warren St., New York. This catalogue is enclosed in an attractive buff cover printed in red and black. It contains 96 pages, which are all very clearly illustrated and contain ample descriptions of a large number of accessories. In order that goods may be easily found in this catalog a very extensive index is given in the front of the book and contains about 450 headings. All the leading lines of automobile accessories are listed in this catalog and the Motor Car Equipment Co. calls attention to the fact that anything on the market not illustrated in the catalog can be furnished on request. This company has shown very good judgment in using good white paper on which the cuts and text matter show up very clearly and distinctly, and besides being of practical advantage, this makes a good impression on the reader. Sending out a poor-looking catalog is like sending out a shabby salesman to sell goods, and on the other hand, a bright, attractive-looking catalog makes a good impression, same as a well-dressed, affable salesman makes upon a possible customer. On the back page of the catalog appears a guarantee that all goods must be exactly as represented, and will be exchanged in case they turn out different from what the customer expected. This catalog is a strong piece of advertising matter and is bound to make a good impression upon the recipient.

Pirelli & Co., 296 Broadway, N. Y. City, have issued a new price list of Pirelli tires, which has been sent out in folder form under date of March 15th.

The Loxier Motor Co., 55th St. and Broadway, N. Y. City, have commenced a publication of a new House Organ, the third in the series of Loxier publications of this character. Their first House Organ was issued by the Loxier Co. when it was manufacturing Cleveland bicycles, and was called "On the Square." The second in the series was the "Propeller," published in the interest of the Marine Department of the Loxier Company, and the third House Organ, called "Loxier Logic," is published in the interest of the automobile business of the Loxier Co. The first number of "Loxier Logic" is a newsy publication of 18 pages and cover. It is in charge of C. A. Emise, manager of their Publicity Department, and will be published at intervals as circumstances demand.

The Joseph Dixon Crucible Co., of Jersey City, N. J., have just issued two new books on Dixon's Lubricants. One of these relates to Dixon Graphite Lubricants for the transmission gears of automobiles, and the other contains a number of questions and answers regarding automobile lubrication. Both are therefore of interest to automobile users and can be obtained by writing to the Dixon Company.

A booklet recently issued by Breese Carbureter Co., of Newark, N. J., is not only a good advertisement of Breese carbureters and fuel strainers, but a comprehensive treatise of the carbureter and fuel question generally, containing as it does a large amount of informative data on this subject.

Under the title "Proof of the Pudding," Stewart & Clark Mfg. Co., 532 Diversey Bldg., Chicago, Ill., have published a large poster also sheet containing on one side a number of testimonials from users of the Stewart Speedometer and on the other side a number of large illustrations showing the various styles of this device alone and in combination with clocks. Accompanying this poster sheet is another sheet containing suggestions in regard to the purposes to which the Speedometer may be put in keeping track of gasoline consumption, mileage of battery service, life of the car, engine efficiency, etc. An order blank also accompanies these pieces of advertising matter.

A combined folder and mailing card has been sent out by the Supplementary Spiral Spring Co., 4524 Delmar Ave., St. Louis, Mo. The data in this folder is under four heads namely, "We Say," "They Do," "They Say," and "You Say." Under "We Say" the company gives their arguments in favor of the use of the supplementary spiral spring. Under "They Do" is told what the springs accomplish. Under "They Say" is given statements of a number of satisfied users of supplementary spiral springs, and under "You Say" appears a form letter to be used by persons who may be induced to investigate the merits of the spring. On the back of the folder a list of records taken from the A. A. A. year-book is printed in full.

The Atwater Kent Spark Generator is very fully described and clearly illustrated in a neat booklet which has lately been issued by the Atwater Kent Mfg. Works, 46 N. Sixth St., Philadelphia. Several of the illustrations are line cuts showing interior and detail views, and in addition to these there is a half-tone illustration of the generator itself, exterior view, and an illustration of the generator on the dash of an Elmore car. The book is very tastefully gotten up and the information it contains is clearly presented, making it an attractive piece of advertising matter.

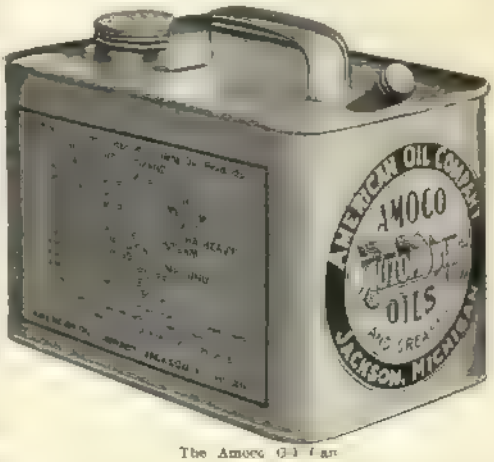
The Klaxon, a new alarm for use on motor cars, motor boats, etc., is very fully described and illustrated by a 16-page folder, which has been sent out by the manufacturers, Lovell, McConnel Mfg. Co., of Newark, N. J. The feature of this booklet is the use of a number of pen-and-ink sketches illustrating in a characteristic manner the uses to which this alarm may be put. Besides these, several half-tone illustrations show the device in different views and a number of line cuts illustrate its constructive features. The text matter is put in the form of a message from Klaxon itself and is written so as to appear as if the alarm was describing itself and explaining its purpose.

A folder recently sent out by Adam Cook's Sons, 313 West St., N. Y. City, contains illustrations of a number of applications of Albany Grease, clearly bringing out the fact that this grease does not drip from the bearing, but stays where it performs the purpose for which it is intended. A letter from the chief engineer testifying merits of Albany grease, and an illustration of a 500 H. P. engine with a hand-made grease cup in which Albany grease is used are features of this folder.

The Touring Bureau of The White Company has just issued the sixth in the series of White Route books. The new issue covers the route from Philadelphia over the National Highway as far west as Springfield, Ohio, and then southward thru the Southern States to Savannah. This book gives definite data on the roads of Kentucky, Tennessee, Alabama and Georgia, and road directions for following the National Highway thru Maryland, Pennsylvania, West Virginia and Ohio. The new route book, besides giving detailed directions for over 1900 miles of road, contains articles descriptive of the route, embellished with numerous illustrations. There is also a fine double-page map of the country traversed. Tourists may obtain copies of the new route book free of charge on application to any of the branches or agencies of The White Company, or to the Touring Bureau of the company, 1402 Broadway, New York City.

The Amoco Oil Can

American Oil Co., Jackson, Mich., maker of the "Amoco" line of oils and greases, is furnishing to automobile users an oil can which will not tip over. It is 8½ in. long, 5½ in. deep and 5½ in. wide, and



The Amoco Oil Can

its shape is shown by the accompanying cut. It can be stored away in a corner of the car and is convenient, attractive and durable.

C. H. & W. E. Salade, of Wheeling, W. Va., dealers in automobile and motor boat supplies, desire to receive catalogs and other printed matter from manufacturers of cars, motor boats, accessories and supplies.

The Metallic Specialties Co., of Philadelphia, manufacturers of robe rails, foot rails, tire holders, lamp brackets, cut-out pedals, etc., has moved from 322 North Broad Street to larger quarters at 302 North Broad. Besides making a complete line of the above mentioned goods, this concern is prepared to estimate on special brass work of any kind and solicit inquiries from manufacturers and jobbers thruout the country.

This cut illustrates our Quick Detachable Terminal which can be applied to the spark plug cable instantly without tools. It makes perfect contact, cannot jar off, but allows quick disconnection when desired.

Now Is The Time

"It shoots a flame"

to equip your engine with better ignition. The heart of the ignition is the plug, and since gasoline costs money, cheap plugs are dear at any price. The Cleveland Spark Plug is exceedingly well made of selected materials, standing alone in its class as the only plug both practically perfect and scientifically correct. Finishing each part to micrometer gauge renders it gas-tight without the use of springs, taper-joints or packing. The spiral core acts as a powerful condenser, producing an **intensely hot** spark, that shoots a flame right into the mixture resulting in **maximum power** at all times. The action of the spiral core renders the plug absolutely proof against short circuiting since it **positively** prevents the deposit of carbon on the insulation surface.

Write ***to-day*** for our introductory offer (for a limited time) which gives you ***free*** with each order for spark plugs, your choice of Battery Connectors or Cable Terminals.

Our printed matter contains interesting information on ignition and explains in detail the wonderful action of the "spiral core," the feature of the plug that "shoots a flame."

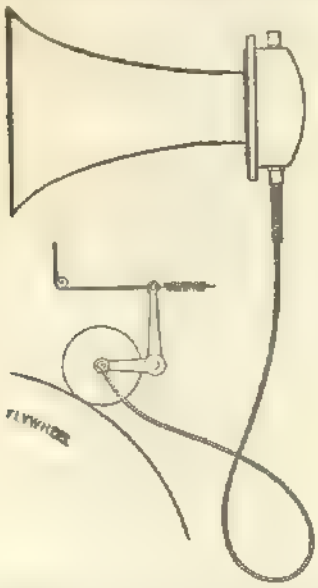
THE CLEVELAND SPARK PLUG CO.

980 Power Avenue, CLEVELAND, O.

The Cleveland Battery Connector is a little wonder and like all our products is extremely well made; easily applied or removed by a twist of the wrist, though a fifty pound pull on the wire in any direction cannot dislodge it, which renders it physically impossible to rattle loose.

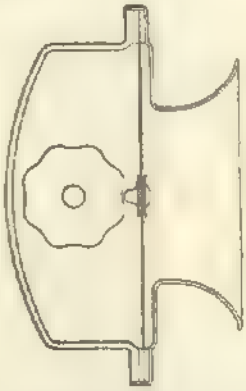
The "Klaxon"

The "Klaxon" is a new type of alarm for motor cars and its name is derived from the Greek word "klaxos" meaning a "roarer." It is the invention of Mr. Miller Reese Hutchison, Madison Ave., N. Y. City, and is manufactured by Lovell-McConnell Mfg. Co. of Newark, N. J., either of whom are prepared to promptly fill orders This alarm consists of only two parts, a Vanadium steel diaphragm, and a cam-wheel. As this cam wheel is revolved the cams strike against a hardened steel anvil affixed to the centre of a diaphragm, causing the diaphragm to vibrate violently and produce a sound, which besides being distinctive has tremendous volume and can be heard at a great distance. The intensity of sound, however, is regulated at will and covers the entire range from a low "growl" to a piercing "shriek."



Type S Klaxon, electrically driven, Type L "Klaxon."

The "Klaxson" is put out in two forms, one for mechanical and the other for electrical drive. The mechanical drive outfit includes the "Klaxon" complete in a highly ornamented polished brass case which may be attached to either side of the dash, a flexible shaft connected to the cam wheel (or rotor) of the "Klaxon" and a friction wheel that is grooved on its periphery, the apexes of the ridges formed by the grooves being knurled so that the wheel is sure of gripping the periphery of the fly-wheel. Any grease or other substance that is on the fly-wheel is forced up into the grooves, as the knurled edges cut thru the film of grease, oil, etc., and take hold without slippage. The friction wheel is mounted on a substantial bracket screwed to the dash at any convenient point. A brass chain leads from an arm of this bracket to a point on the steering column convenient to the hand of the operator. A pull of the chain brings the small friction wheel into contact with the fly-wheel and causes the "Klaxson" to "roar" or "growl" according to the pull given the chain. When the chain is released the friction wheel flies back against a brake which instantly stops its revolution



Type S Klaxon, showing diaphragm and cam wheel.

The electrically driven "Klaxon" includes a small but powerful motor which is operated from the ignition current or from a separate battery. It is actuated by a push button located on the steering wheel, or by a chain if desired.

Two styles of the "Klaxon" are made; Type S for use in cities and immediate suburbs and Type L which throws the sound far ahead and is especially suited for country use or on motor boats. Type S, either type of drive, lists at $35 and Type L at $40.

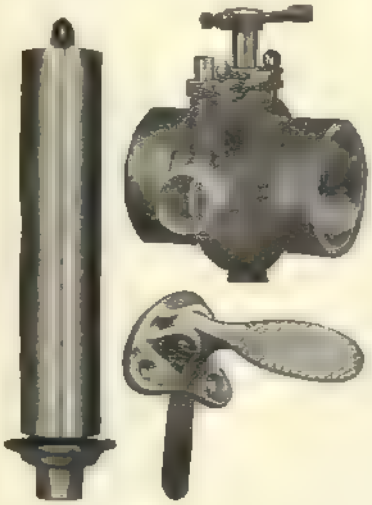
The Goodyear Tire and Rubber Company, Akron, Ohio, is running a night force in its automobile tire department to keep up with orders, which surely is an impressive indication of the condition of the tire branch of the automobile business as well as of generally improved conditions.

Dow Portable Electric Company of Braintree, Mass., makers of ignition apparatus, have arranged to sell their entire output thru the Geo. Q. Hill Company of Boston, Mass. There is no change in their local representatives, however, W. J. Connell, 36 Columbus Ave., Boston, continuing as New England representative, Factory Sales Corporation, 235 Randolph St., Chicago, western representative and L. H. & B. J. Bill, 132 Valencia street, San Francisco, Pacific coast representative. Mr. Dow, with whom Mr. Theodore M. Muller, graduate of Stuttgart University is now associated, will devote his entire attention to the manufacture of the Dow line. Mr. Muller was until recently with Robert Bosch of Stuttgart, Germany.

"Norwall" Four-Tone Motor Chime

The accompanying cut shows the Norwall four-tone motor chime, manufactured especially for use on automobiles, motor boats and launches. The cut also shows the foot pedal and operating valve used in connection with the chime. The device is manufactured by the Barco Brass & Joint Company, 56 North Jefferson street, Chicago, Ill.

The chime is 2½ inches in diameter and about 14 inches in length. It is made of special seamless brass tubing, having four compartments of harmoniously blended notes. The chime can be used in connection with any class of motor, and will pass Government inspection for launch work



The "Norwall" Four-Tone Motor Chime Pedal and Valve.

and under favorable conditions the manufacturers claim can be heard for a distance of five miles or more. A double opposed butterfly system is used in the construction of the valve, which is unaffected by heat or soot and throttles the tone perfectly. The valves are made in diameters of 1½, 2 and 3 inches and will fit standard iron exhaust pipes of corresponding size.

The price of the chime, complete with pedal and 1½-inch valve, is $9.00; with 2-inch valve, $9 50, and with 3-inch valve, $12 50. This concern also manufactures a fuel strainer cast in one piece of bronze metal, which precludes the possibility of any leakage. The strainer is made of fine mesh wire cloth and cotton gauze, both of which can be easily removed and cleaned. In this strainer the liquid is strained upwards, all dirt and sediment falling to the bottom, thus requiring a minimum amount of cleaning. A special cleaning device with thumb lock nut is placed underneath the sediment chamber, so that the strainer may be cleaned without disconnecting it. The pipe connections are made for ⅛-inch soldered joints, special sizes being made to order. The list price is $2 00.

This company makes a specialty of manufacturing all kinds of light articles in brass and iron to order, such as automobile specialties, metal patterns, also special tools for working in brass.

Recent Additions to Firestone Plant

The accompanying cut shows the new four-story addition made to the Firestone Tire and Rubber Company's plant at Akron, Ohio, this addition giving the concern 47,900 sq. ft. more floor space.

The first floor is devoted to calenders, mills and heavy machinery, and to a 50 per cent. increase in the facilities for small sizes of the side wire tires, such as are used on motor-driven buggies. The second and fourth floors are devoted to the lab-

New Addition to the Firestone Tire and Rubber Company's plant at Akron, Ohio.

oratory, rubber drying rooms and to two large size vacuum drying machines for drying crude rubber after it has been washed and cleaned. It is reported that the sales of Firestone tires for the first three months of this year were the biggest ever made by the company, and were twice as large as in the same period last year. The factory is working both day and night.

Mr. Carl Kaufman, General Manager and Treasurer of the Motor Car Equipment Company, 55 Warren Street, New York City, is sailing to Europe on April 7th, where he will spend two months in getting in touch with the leading manufacturers of Automobile Equipment and Supplies.

We are informed that in accordance with its long-established custom of making early deliveries of its product, the Packard Motor Car Company, of Detroit, is busy to the full capacity of its immense plant, getting out the last 400 cars of this season's output. Already one thousand 1908 Packard "Thirties" have been delivered to purchasers, and the two thousand men at work in the different departments of the factory, which covers a floor space of eleven acres, are now turning out cars at a rate which will probably complete the annual program of production on schedule time.

The Light Model "De Luxe" Twin Cylinder

This is the latest model brought out by the Light Mfg. and Foundry Co., 4th and Hanover Street, Pottstown, Pa. The design of this model is a combination of American and foreign ideas which makes it a long, low rakish motorcycle giving it a very sporty appearance. Comfort has been considered, the frame being 20 inches high with a wheel base of 60 inches, while a 4¾ inch clearance is given the motor. The motorcycle is equipped with the Light Spring Fork and the new "V"-shaped handle bars with double grip control.

Special attention has been given to the proper distribution of weight. This motorcycle weighs as much on the front wheel as on the rear. The motor is hung the exact equal distance between the front and rear wheels and at the lowest point of gravity making it not only comfortable and one that is easily controlled, but the possibility of skidding is greatly eliminated. The seatpost instead of coming out of the top of the seatpost mast, slides in and out of the top bar, thus permitting the saddle to be placed in any position over the rear wheel, so that a man with a 30 inch leg measurement can straddle the saddle and still have his feet on the ground, if so desired.

The long wheel base combined with the Light "Yesitisa" spring forks, long handle bars and equipped with long flexible rubber grips eliminates all vibration. The motor employed in this model is the "Thor" 5 H. P. double cylinder with a Sims-Bosch magneto. The carburetor sets forward of the front cylinder and in such a position that it does not interfere with the cooling of either cylinder. A separate exhaust pipe is supplied for each cylinder which continues down into a double muffler, of Light Radio type which makes the machine absolutely silent. The left grip operates the carburetor throttle. The tank fitted on this machine holds two gallons of gasoline and two quarts of lubricating oil sufficient to carry the machine for a distance of one hundred miles. The oiling is done by a sight feed cup or measure which can be operated by the rider while in motion.

The wheels are 28 inches equipped with 2½ inch tires either G & J, Goodrich, or Empire The transmission is a combination of gears and chain, the reduction of the gearing being made in the motor itself, making it practically a direct drive. A ⅝ pitch roller chain is employed with a yielding sprocket on the rear wheel. The machine will run at all speeds of from 6 to 60 miles per hour. The price of this machine is $350 with magneto ignition and $300 with battery ignition.

The Light Model "De Luxe" 5 H. P. Twin Cylinder Motorcycle.

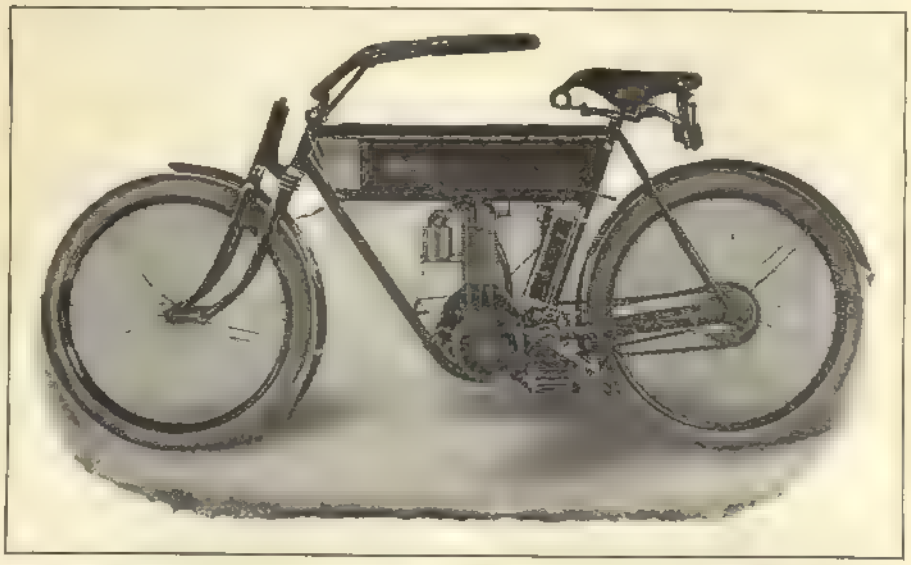
It is said that in Beckenham, England, the fire master has installed a motorcycle equipt to carry two men and a light extinguisher, for the purpose of answering first alarms on short notice.

Belleville, Ill., will have a motorcycle and bicycle meet on Sunday, May 17, on the half-mile track at Priester's Park. Three events for motorcycles and one for bicycles are included in the program.

H. E. Toms, 10 Ossian Street, Danville, N. Y., has designed a unique but neat motorcycle with an opposed motor and V belt transmission. The wheel base is 56 in. and the frame is 21 in. in height. He wants to receive catalogs from makers of motorcycle parts and supplies, and he also wishes to interest capital for the purpose of getting his machine on the market.

In order to promote a high standard of efficiency of its factory and to maintain the same, the Miami Cycle & Mfg. Co., of Middletown, Ohio, has decided to distribute $100,000, or one-fifth of the capital stock, among the managers, heads of departments and other employes. Ten thousand dollars is to be distributed among the workmen as premiums for suggestions, faithful service and attention to duties.

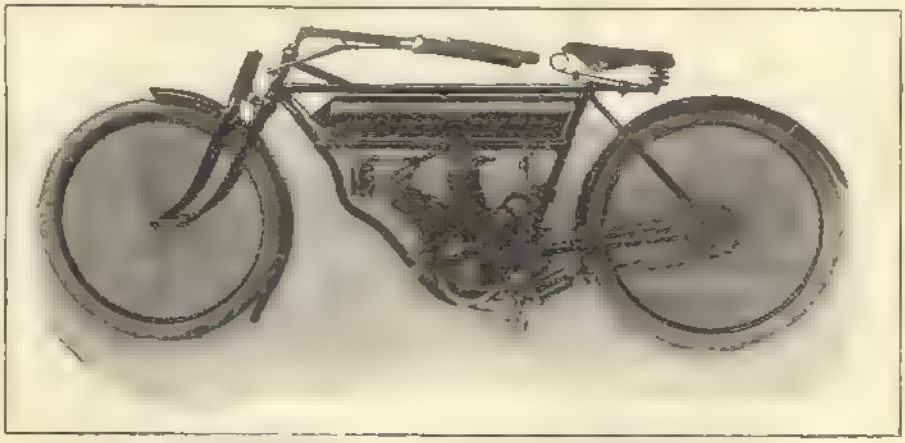
KING QUALITY
The LIGHT MOTORCYCLES



MODEL B

MODEL B 3 H. P. Gear drive, "YESITISA" Spring Forks, "Radio" Muffler, "V" shape Bars. Grip Control; Speed, 4 to 50 miles per hour. **PRICE, $225.00.**

MODEL DE LUXE. Light, 5 H. P. Twin Cylinder, 20 in. frame, 58 in. wheel base. Motor, 4¾ in. from the ground, 2½ in. Clincher Tires. Tank capacity, 2 gals. gasoline, 2 qts oil. Our muffler arrangement makes the exhaust SILENT, without back pressure. Speed 6 to 60 miles per hour.



PRICE, $300.00—with Magnetos—$350

FURTHER PARTICULARS, ADDRESS MOTORCYCLE DEPT.

THE LIGHT MFG. & FOUNDRY CO.

HANOVER & 4th STS., POTTSTOWN, PA.

MOTOR CYCLE DEPARTMENT

MOTORCYCLES IN THE VANDERBILT RACE

The motorcycle proved a very useful vehicle in carrying out details of the Vanderbilt Cup Race. The couriers, mounted on motorcycles, passed rapidly back and forth over the different parts of the course on various errands, and the design and speed of the machines rendered them especially efficient in this service. A picked corps of experienced riders patrolled the course between telephone stations, and when an accident occurred one of these men hastened to the nearest telephone station with full particulars which were immediately telephoned to the grandstand. Motorcycle couriers also reported details regarding stoppage of cars on the course, and in addition kept a sharp lookout to see that the rules of the race were complied with. They also kept track of the flagmen and saw that their duty was properly performed. One of the most important duties of the motorcycle couriers was in the vicinity of the grandstand keeping the crowds back off the course. This was done by speeding back and forth for a mile each side of the grandstand which method was found very successful.

The machines used included two Curtisses, one Merkel, four F. N.'s, four Indians, two N. S. U.'s and an M. M., the corps being in charge of Earl L. Ovington, President of the Federation of American Motorcyclists, and Secretary of the New York Motorcycle Club.

GOERKE AND HUYCK WINNERS IN THE F. A. M. ELECTION DAY MEET

The Federation of American Motorcyclists held a national championship meet at Morris Park course, New York, on election day, in which Walter Goerke won both the 5-mile and 10-mile national championships, and Fred Huyck won the one mile event. The 5-mile event had twelve starters, Goerke with his 7 H. P. Indian making the best start and winning the event by 100 yards in 5:22 3-5. The one mile championship event had the same starters as the 5-mile event with the exception of Edward Swain. Huyck won this event beating Goerke by about 50 yards. His time was 1:10 3-5.

The 10-mile championship event was the most exciting of the day. Goerke made a premature start but was called back and in the actual start Huyck and Robinson got the lead on him. Goerke, however, passed them before the first mile was finished, Huyck and Robinson running nip and tuck for more than five miles when Huyck was eliminated from the race by the breaking of a chain. Kellogg worked up into second place, but no one succeeded in catching up to Goerke who took the turns without slowing up leaning over almost beyond the limit of safety in making the turns at high speed. Goerke beat Kellogg by a half mile. A. G. Chapple, also riding an Indian, was third. Goerke's time was 10.35 2-5

The five mile event was run for those who did not get placed in the championship event and for any others who might care to enter. George Ruck, riding an Indian, took first place by the end of the first mile but quit in the second lap, and Butler, riding a 3½ H. P. "R S," took the lead. Butler maintained the lead until the last mile when he was passed by Edward Swain, another R-S rider, who finally won in 7:17. Butler was second and Stubner, also riding an R-S, was third.

The summary follows:

Five miles F. A. M. national championship—Walter Goerke (7 Indian) second Fred. Huyck, (7 Indian); third A. G. Chapple (7 Indian). Time, 5.22 2-5. Other contestants—W. H. Robinson, 5 Indian; Stanley T. Kellogg (7 Indian), H. [illegible] P. Shay (6 N. S. U.), Fred. Voelkner (7 N. S. U.), William P. Bewley (7 R. S.), George Ruck (5 Indian), Edward Swain (6 N. S. U.), W. H. Wray, (6 Simplex), and Watson J. Kluczek (3½ Harley-Davidson)

Three miles for private owners, single cylinder machines not exceeding 30½ cubic inches, without auxiliary ports—J. Dietsch Jr., (3½ Merkel); second, Watson J. Kluczek (3½ Harley-Davidson); third W. F. Stubner (3 R. S.). Time 4 [illegible] Robert Butler, (3½ R. S.), finished first but was disqualified for having auxiliary ports.

One mile F. A. M. national championship—Fred. Huyck (7 Indian), second, Walter Goerke, (7 Indian); third, Stanley T. Kellogg, (7 Indian). Time, 1:10 3-5. Other contestants Chapple, Robinson, Shay, Voelker, Bewley, Ruck, Kluczek and Wray

Ten miles F. A. M. national championship—Walter Goerke (7 Indian) second, Stanley T. Kellogg, (7 Indian) third, A. G. Chapple, (7 Indian) Time, 10:45 2-5. Other contestants—Robinson, Shay, Bewley, Ruck, Swain, Butler, Kluczek and Huyck

Five miles, open to all except placed men in the championship—Edward Swain, (6 R. S.); second, Robert Butler Jr. (3½ R. S.) third W. F. Stubner, (3 R.-S.) Time 7:17

The managers of the Boston Automobile Show to be held in Mechanics Building, March 6-13, 1909, have arranged for a motorcycle section to be designated as Department D. This section will be in the basement of the building and will include 25 spaces to be given up exclusively to motorcycle exhibits.

PASADENA MOTORCYCLE AGENT USES INSTALLMENT PLAN

We note with interest your comment upon selling motorcycles on the installment plan in one of the late issues of your valuable publication.

We have sold 48 motorcycles since January 1, 1907, of that number 21 have been on the payment plan of $100 down, balance at $20 per month or $75 down, balance $25 per month. We sell a machine for $200, a model B, $225, model A, $300; for model D we get an additional $15 if sold on the installment plan. We take a lease on all motorcycles sold in that way and to date we have had no trouble whatever in making our collections.

Pasadena is a city of 30,000 population and is 9 miles from Los Angeles.

In Los Angeles a motorcycle can be purchased for $50 down and $3.50 per week but by confining our time to home trade only, we have not been bothered by Los Angeles competition.

We hope to hear further comment on the subject.

PASADENA, CAL. PARK CYCLE CO

WIDMAYER'S NOVEL CONTEST

A contest between American and foreign motorcycles was recently engineered by F. B. Widmayer the Indian agent in New York City, and H. G. Chapel, captain of the N. Y. Motorcycle Club, each of whom selected a team, one riding American machines and the other foreign machines. Three contests are to be held altogether, the first of which was run on November 8 and was won by the American machines. The run was from New York to Poughkeepsie and back, total 150 miles and the start was made at 7 A. M., a time limit being made for the completion of the run. Machines were due in New York at 4 P. M. but only 6 out of 16 made good, including 3 Indians and a Wagner representing America and two N. S. U. motorcycles representing foreign countries. F. A. M. rules governed the contest. The losing team had to banquet the winners. A silver cup goes to the winner of two out of the three contests, the second to be held in the spring.

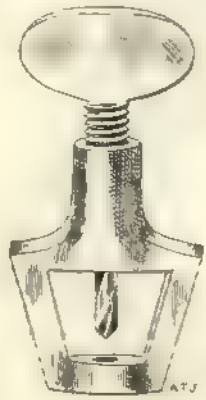
The supervisors of Nassau County, Long Island, have purchased a motorcycle and engaged a competent driver to patrol the roads in search of automobilists and motorcyclists who exceed the speed limit.

Motorcycle enthusiasts of St. Paul, Minn., have recently formed a club, styled the Motorcycle Club of St. Paul. Geo. K. Foster was elected president; C. S. Horn, vice-president; Theodore F. Broos, secretary, and Alban Bodine, treasurer. Dues and initiation fees for charter members were fixed at $1 for the remainder of the season.

"MAJESTIC" V-BELT DRILL

One of the latest devices placed on the market in the line of motorcycle specialties is the Majestic V-Belt Drill, shown herewith.

All users of "V" belts know the importance in shortening a belt, of getting the hole or holes for the fastener screws absolutely true, that tear-cuts may be prevented. The use of an ordinary belt punch is usually objectionable, as it spreads the hole unduly at one end, causing greater strain on the tight end. The Majestic



The "Majestic" V-Belt Drill

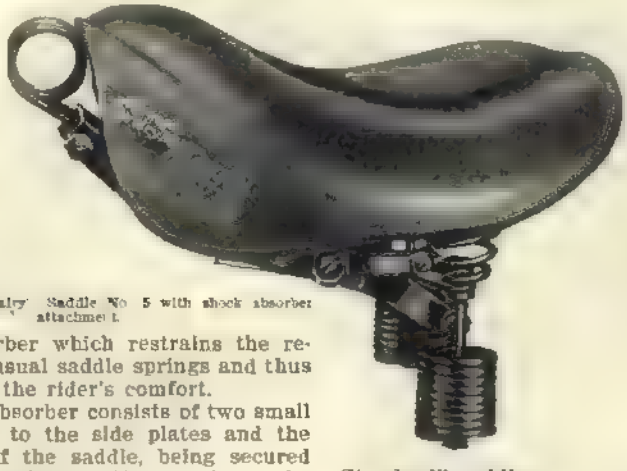
Manufacturing Company, of Worcester, Mass., have produced a little tool especially designed for drilling "V" belts, and it works with equal accuracy on belts either three-quarters, seven-eights or one inch wide. The main frame is of polished aluminum and the head and screw is of highly finished bronze, with the drill set permanently therein. In order to introduce this belt drill among motorcycle riders the makers will mail them direct upon receipt of fifty cents in stamps.

Topeka, Kansas, is soon to be the possessor of a motorcycle to be used by the city policemen in running down automobilists who exceed the speed limit.

In a motorcycle meet at Morris Park Track on Sunday, November 1st, E. L. Ovington, riding a 5 H. P. "F. N.," and Walter Goerke, on a 3½ H. P. Indian, who were the chief attractions, indulged in a brush for six miles in a 10-mile event for machines with a cylinder capacity of 30½ cubic inches and under. Ovington was delayed by the derangement of his oil pump and Goerke won the event in 14·26 2-5. A. H. Bartsch, riding a 4 H. P. "N. S. U.," was second and Ovington third. A. G. Chapple, 6 H. P. "N. S. U.," won the 10-mile event for multi-cylinder machines and a "Miss-and-Out" race, in which the last man of each lap was eliminated, and the survivor was declared the winner.

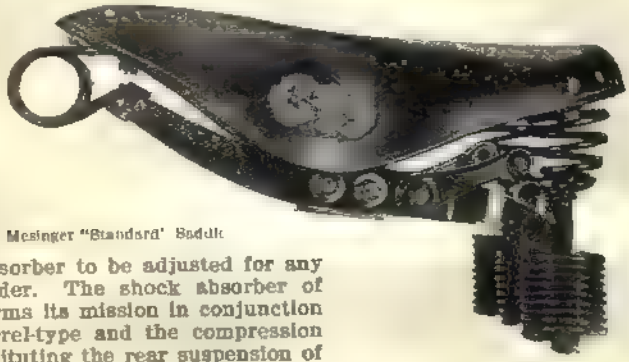
SHOCK ABSORBER ON NEW MESINGER SADDLE

An innovation in motorcycle saddle design has been introduced by H. & F. Mesinger Mfg. Co., 1801 First Avenue, New York City, in its 1909 line of saddles. This saddle possesses the radically new feature of a shock absorber which restrains the rebound of the usual saddle springs and thus adds much to the rider's comfort.



The Mesinger "Cavalry" Saddle No. 5 with shock absorber attachment.

The shock absorber consists of two small levers hinged to the side plates and the rear guides of the saddle, being secured thereto by a bolt and fibre washers, the nuts on the bolt being ingeniously made to serve as locknuts by the threading of the bolt hole in the side-plate. This arrangement not only keeps the nuts secure, but in connection with the fibre washers permits the shock absorber to be adjusted for any weight of rider. The shock absorber of course performs its mission in conjunction with the barrel-type and the compression springs constituting the rear suspension of the saddle. The absorber checks the rebound of these springs and also prevents side-sway.



The Mesinger "Standard" Saddle

The device is applied to both the Mesinger cavalry saddle and the standard or hammock-type model.

The cavalry has a top of the dished pattern. Both models are now being made in a variety of sizes, the short, wide pattern minus the horn or pommel, as shown by the accompanying illustration, being the very latest addition to the line.

The tilting clamp, another new feature, serves a double purpose; not only permitting the saddle to be tilted, but also securing it to the seat post and in addition is fitted with side bolts which are readily accessible. All bolts used on Mesinger saddles are center punched to prevent nuts from working loose or falling off.

The 1909 Mesinger line of "Cavalry" saddles includes five sizes ranging in price from $5.50 to $11. and in dimensions from 12 inches long by 9½ inches wide to 13½ inches long by 16 inches wide. The "Mesinger Standard" saddles are made in four sizes, the smallest being 11 inches long by 8 inches wide and the largest 14½ inches long by 13 inches wide. Prices run from $5.50 to $10. These are all fitted with shock absorbers. The line also includes a "Cavalry" saddle with compression springs listing at $4 and another light weight saddle ("Model A") fitted with compression springs listing at the same price.

The recent forest fires in Michigan presented an unusual opportunity to prove the usefulness of power wagons and the Grabowsky Power Wagon Co., of Detroit, were quick to take advantage of the opportunity rendering very valuable aid in gathering donations of clothing and provisions from various outlying points near Detroit and conveying the same to the relief committee's headquarters for shipment to destitute residents of the town of Metz, this town having been destroyed by the fire.

pose of transporting patrons who leave street cars at Broad Street or trains at Broad Street Station and guests at prominent hotels along Broad Street to the theatres. The [illegible] run continually from 7.30 until 8.30 in the evenings and from 1.30 o'clock until 2.30 for the matinees.

F. M. Roscoe, a grocer of Southport, Conn., has been using a two-cylinder car for delivering groceries on long-distance trips.

Dr. P. Elwood Stigers, Hancock, Md., is using a Ford 4-cylinder runabout for making professional calls.

The U. S. Navy Department recently purchased two automobile ambulances from the White Company, of Cleveland, Ohio. One of these is for use at the Naval Hospital at Philadelphia, and the other at the Tuberculosis Hospital at Los Animas, Col.

"Reliable Dayton" Special Auxiliary Delivery Body

The Reliable Dayton Motor Car Co., 15-21 North May Street, Chicago, Ill., has brought out this attachment to provide means whereby an owner of one of its type F high-wheeled cars can transform the latter from a pleasure to a commercial vehicle in a short time and at small expense.

The Reliable Dayton Type "F" car fitted with Special Auxiliary Delivery Body.

The delivery body which is here shown attached to the car is 33 inches long, 42½ inches high and 47 inches wide. It is supplied at the rear with double doors, which afford an entrance from the rear of 42 inches wide and 29 inches high. Best poplar is used, furnished in black and striped in blue, same as the regular type F finish. A slat shelf is fitted 23 inches above the floor of the car. The carrying capacity is 500 lbs. Type F car has been described in our November 1908 issue, page 67. The price of the car with rear seat is $925, and without rear seat and equipped with auxiliary delivery body $935. Price of the auxiliary delivery body alone is $35.

The Corbin Motor Vehicle Corporation of New Britain, Connecticut, manufacturers of the Corbin Car, recently increased its capital stock from $200,000 to $500,000.

Knox Co. to Furnish Willimansett's Fire Engines

Willimansett, Mass. will soon be the possessor of a motor fire engine which will cost $6,500 and will be furnished by Knox Automobile Co. of Springfield, Mass. It will be propelled by a four-cylinder, 40 H. P., air-cooled motor, while the transmission will be of the selective type, giving three speeds forward and one reverse, direct on high. The car will be fitted with Timken roller bearings thruout. The wheel base will be 124 inches, and the wheels will be 34 inches in diameter and fitted with solid tires. There will be seats for two men, one of whom will be the driver, in front, and a running board at the rear will accommodate several more. The body will be similar to that of a hook and ladder truck, and will carry two 25-gallon tanks of chemical, 200 feet of chemical hose, 500 feet of fire hose, two 14-foot extension ladders, two hand extinguishers, a crowbar, axes, etc. The car will have two brass gas lamps on the dash and also a swinging searchlight, so that it will not be hampered by darkness.

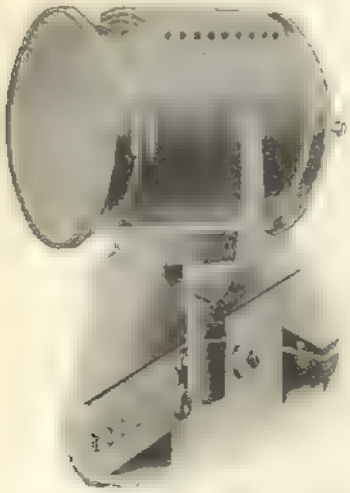
The New York branch of The White Company recently sold an ambulance to the Kings County Hospital of Brooklyn. The ambulance consists of a standard 30 horsepower chassis with a body similar to those of the ambulances furnished by The White Company to the United States War and Navy Departments.

The Motor Commercial Delivery Co., 402 South Juniper St., Philadelphia, is doing a delivery business, handling all kinds of merchandise except tonnage. At present from 15 to 20 cars are in commission of various makes.

The "Richardson" Baby Arc Searchlight

The Richardson Engineering Company, Hartford, Conn., recently placed on the market the electric searchlight, illustrated herewith, and which is designed especially for automobiles and launches. It is claimed to light up objects easily one-quarter of a mile ahead on the darkest nights.

Current for the lamp is supplied by a generator, which can be belted to the flywheel of the motor. It weighs 45 pounds and is 7½ inches in diameter. The lamp is 8 inches wide, 12 inches long and 12 inches high from the dash up. The standard finish is full polished brass, although any finish may be had on order. It is claimed that the light not only operates nicely at wide variations of engine speed, but does not go out until the engine speed is reduced to a mere walk. The searchlight is fitted with a handle on the back to guide it for vertical and horizontal motion, and is furnished with pedestal for launches or swivel bracket for automobiles.

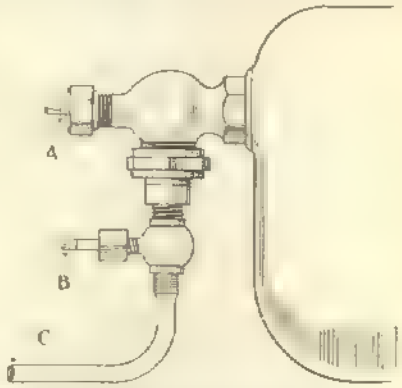


The "Richardson" Baby Arc Searchlight

A switch on the dash allows of the light being instantly turned off or on without any inconvenience. The carbons are operated by an automatic shunt feed; that is, the carbons feed together automatically as they burn up. The price of the searchlight is $120, and of the entire outfit consisting of lamp No. 4-G generator and fused connecting switch $165. The lamp is also furnished with a storage battery outfit, consisting of a 30-cell, 20-ampere hour storage battery marine (sealed in) type, and suitable switchboard with pilot lamp, voltmeter, ammeter, automatic storage battery charging switch, voltmeter switch, and cell switch, and fused control switch. This storage battery will run the 7-inch arc searchlight about 5 hours on each charge, or light ten 6 candle-power cabin lamps. The price of battery and switchboard is $260, and the price of the searchlight, No. 4-G generator, switchboard, and 30-cell, 20-ampere hour storage battery is $425.

The "Autogas" Burner Supply Valve

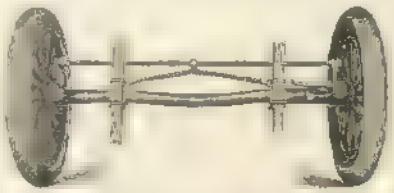
This attachment for gas tanks has been brought out by the Avery Portable Lighting Company, 18-20-22 Martin Street, Milwaukee, Wis., for the purpose of eliminating the liability of turning too much gas pressure into the lamp burners when lighting up. The valve B is adjusted to give proper flame to the burners and the gas is turned on and off as usual at valve A, it being necessary to adjust valve B from time to time as gas is used out of tank. The valve is easily applied to any gas tank or in the pipe line, and lists at 60 cents.



The "Autogas" Burner Supply Valve

The "Little Steersman"

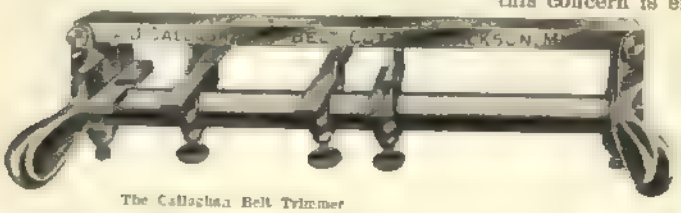
The "Little Steersman" is a steadying device for the front wheels of motor cars, being intended to automatically keep the wheels from wobbling. It is the product of The Abrams-Mason Co., of Chatham, Columbia county, N. Y., and consists solely of a helical spring about three feet long and suitable clips for fastening it to the car. As shown in cut herewith, the ends of the spring are fitted with clips for the purpose of fastening to the spring clips of the car, and a third clip is provided at the middle of the spring by which it is fastened at this point to the steering rod. It is apparent that any tendency of the wheels to swerve from a straight course will be counteracted by the spring.



The "Little Steersman," a steadying device for counteracting any tendency to wobble in the front wheels of a motor car

The Callaghan Belt Trimmer

A. J. H. Callaghan Company of Jackson, Mich. are manufacturing a device which will interest factory superintendents and users of driving belts generally. This device is the Callaghan Belt Trimmer, a handy apparatus enabling the user to keep belts straight, cut off curled up edges, use up old belts and work up odds and ends to standard sizes to keep on hand for quick repair work in case of a breakdown



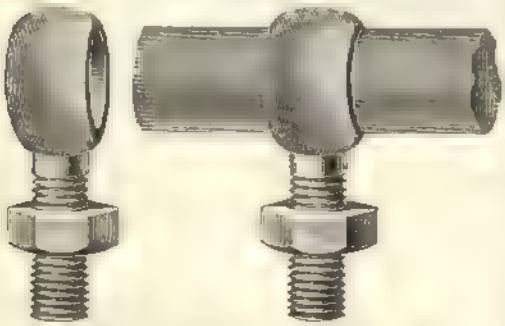
The Callaghan Belt Trimmer

This belt trimmer is very easy to operate being of simple construction and is adjustable to different widths. It will trim both edges of the belt at one cutting. The gauge bar is marked in eighth-inch spaces and can be raised or lowered to accommodate belts of different thicknesses. Four guides are provided guiding the rough and straight edges of the belt. Three sizes of this tool are made 12, 18 and 24 inches in width respectively.

"Cortland" Adjustable Nibs for Shifting Rails

The Cortland Forging Company, of Cortland, N. Y., is manufacturing an adjustable nib or bolt for shifting rails, as shown herewith.

This nib slips on the oval of the shifting rail and allows the user to adjust the bearing to any variation in the seat irons. The nut draws the nib tight into the seat iron



"Cortland" Adjustable Nibs for Shifting Rails.

hole, firmly securing the rail so that it will not become loose and rattle. These nibs are made in two sizes, viz: ¾ x ⅝ oval and ⅝ x ⅝ oval. The bolt part on both sizes is 5-16th in. The nibs are japanned and furnished complete with nuts.

This concern is also making finished joints for landaulette and taxicab tops. These joints are made in three different sizes, ¾ x ½ in., ⅞ x ⅝ in., and 1 x ⅝ in. The joint knuckles are made in a special manner, carefully machined to insure perfect alignment.

The "Westchester" Dry Cell

The accompanying cut shows the Westchester dry cell manufactured by the Westchester Appliance Company, of Tarrytown, N. Y. In placing this cell on the market this concern is endeavoring to produce the

The "Westchester" Dry Cell

best dry cell that can be made, irrespective of the cost. The cell is gotten up especially for automobile ignition work. It is put out with an initial amperage ranging from 28 to 32, and after three months on the shelf is claimed to still show 22 to 25 amperes. The manufacturers state that they have taken a number of large contracts for these cells, both under their own label and under special names for some of the largest jobbers in the country. The list price of the cell is 35 cents.

The Bosch magneto has been marketed for years under the firm name of Robert Bosch, New York, Inc. With the idea of emphasizing more clearly the name of the magneto, the manufacturers will hereafter be known as the Bosch Magneto Company.

The Autocar Company takes pleasure in announcing that they are fortunate in having again secured the able services of Mr Marcus I. Brock, who will assume the General Management of their Sales Department. Mr. Brock is no stranger to The Autocar Company or its dealers, having spent three years with them prior to December 1905, in charge of their Sales Department, severing his connection at that time to become the Assistant General Manager of the Association of Licensed Automobile Manufacturers in New York, which office he recently resigned.

The Oakland Taxicab

The Oakland Motor Car Company, of Pontiac, Mich., have entered the field with the car herewith illustrated. It is light in weight, staunch in construction, and purchasable at a price consistent with a reliable, economical vehicle

GENERAL SPECIFICATIONS

The motor is noticeable, as it is a two-cylinder vertical, which is very unusual. The cylinders are 4½x5 inches, rated as 20 H. P. The wheel base is 96 inches, tread 56. The front springs are semi-elliptic and the rear full elliptic. The regular equipment is 30x3½ inch Goodyear quick detachable tires. The seating capacity inside is four, making the carrying capacity six in all. The car weighs 1800 lbs. and sells for $1850, f. o. b. Pontiac, Mich.

WATER CIRCULATION.

The Oakland motor is water-cooled, the water being circulated by a thermo-syphon system. The path of the circulation is short, and all pipe and hose connections are very large, thereby insuring perfect flow at all times. The thermo-syphon system not only does away with all gears and pumps, but insures even cylinder temperature under all external conditions, as the rate of circulation depends not on engine speed without consideration of engine temperature, but on the temperature itself. If the pump on a force-feed system is properly adjusted for cooling at normal speed in summer, it is causing the water to circulate too freely for even fair cooling in winter, as the water will cool much faster in the radiator when the weather is cold, while the thermal system automatically takes care of such conditions.

VERTICAL MOTOR.

As the motor is vertical, there is only one offset in the crank-shaft and only two crank-shaft bearings are necessary. Bearing alignment is thus reduced to its simplest form. The valves are large and conveniently placed, both inlet and exhaust being on one side. Any valve may be taken out in a moment by unscrewing one fitting. The intake pipe is short and large. The spark plugs are set in the centre of the intake valve fittings, and are in consequence very convenient at all times. The high tension wires, each less than nine inches long, lead to a Heinze spark coil on the dash. The low tension wires are of best quality and the remarkably simple but effective timer placed on the forward end of the camshaft is also readily accessible

THE OILING SYSTEM.

The oiling arrangement is Oakland design and is very simple. The oiler is sight force feed with leads to two points only; the forward; main bearing and the transmission. The former is flooded, the surplus oil flowing into the crank case. The design of the crank case causes positive splash oiling to all other bearings.

ACCESSIBILITY.

Embodied in this design are two conveniences which will be appreciated by all car owners. First, the extremely large crank case hand hole, allows all the room for inspection and work that could be desired Second, the air-cooled removable cylinder head is the greatest eliminator of carbon troubles yet found. These heads unscrew, exposing full cylinder interior when taken off. The cylinders may also be detached from the crank case without disturbing the remainder of the engine.

New Two-Cycle Elmore Taxicab

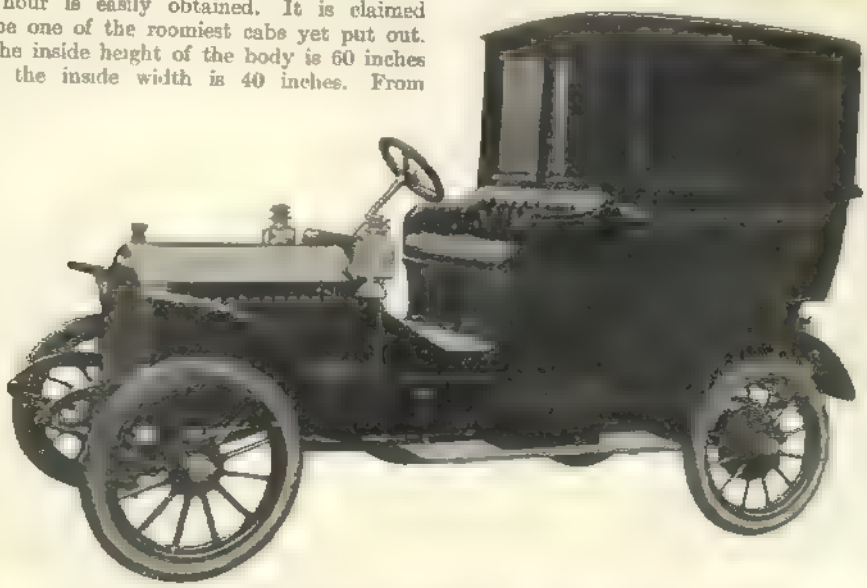
Elmore Taxicabs are now being shipped from the Elmore factory as rapidly as they can be assembled. For the present the entire output is being sent to Chicago, where Mr. Owen H. Fay intends to install the first Taxicab service to be put in operation in the windy city.

These Taxicabs are built over the same construction used in the Elmore Thirty, which is the three cylinder, two cycle valveless car built by the Elmore Manufacturing Company. The cab is an exceedingly light one, weighing less than 2,300 pounds. The engine develops 24 horse power and is geared 3½ to 1, so that a speed of from 4 to 30 miles an hour is easily obtained. It is claimed to be one of the roomiest cabs yet put out.

The inside height of the body is 60 inches and the inside width is 40 inches. From the front seat to the back cushion is 45 inches. The door is 22 inches wide and 54 inches high. The distance between the back of the front seat and the front of the rear seat is 27 inches and the extreme height of the body from the ground is 90 inches. Three people can be very conveniently seated in the cab, while two people have plenty of room and to spare. The top, of landaulet pattern, lets down, making an open car.

The upholstering is furnished either plain or in biscuit pattern, in either cloth or leather. Best quality of both covering material and curled hair is used. The cushions are all extra length and are built on the best quality of oil tempered springs, and like the rest of the inside are furnished in blue. Arm straps are also supplied. The doors are operated by inside latches, and both the front and the door windows are of the drop pattern manipulated from the inside. The regular color of the Elmore Taxicab is dark green with a light red stripe.

The only other difference between this Taxicab and the regular stock chassis is the fact that the wheel base has been shortened slightly, it being but 102 inches. This makes the car very easy to handle as it can be turned around in the average street without having to back.



The New Two-Cycle Elmore Taxicab. The chassis is practically the same as that of the Elmore 30 and is fitted with a three cylinder 2 cycle engine of 24 H. P. The wheel base is 102 inches. The front and door windows are of drop pattern and the finish is a dark green. Either leather or cloth upholstery is applied. The top, of landaulet pattern lets down making an open body.

Demonstration of Alcohol as Fuel for Heavy Trucks

The Hewitt Motor Co., recently made a demonstration of alcohol as fuel in one of its 5-ton gasoline trucks, from its salesrooms in East Thirty-first St., New York City. No changes were made to the vehicle with the exception of placing a hot water jacket around the intake manifold, and raising the compression of the motor from 78 to 112 pounds by using longer pistons with dome shaped heads. The motor is rated at 32 H. P. and has four cylinders 4½ x 5½ inches. The first day's run with a 1000 lb. load demonstrated the flexibility of the motor, which could be run fast or slow with as much ease as if gasoline were used. Other runs made later with full 5-ton loads showed that the change of fuel did not lessen the capacity of the truck.

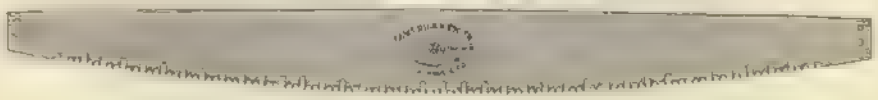
The American Locomotive Automobile Co., Providence, R. I., are now making 100 taxicabs for the William H. Search Co., of New York, which has the cab privilege of the Park Avenue Hotel, Holland House and the Waldorf-Astoria, in New York City.

CROSS-CUT SAWS

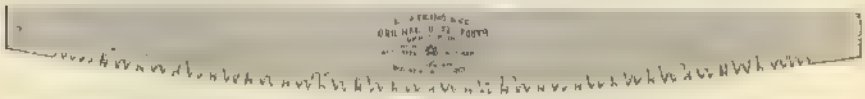
ATKINS REX

Segment ground 14 gauge on tooth edge 16 gauge at ends on back edge 19 gauge at center on back edge.

GREAT AMERICAN TOOTH



TUTTLE TOOTH



TENON TOOTH

LIST PRICES WITHOUT HANDLES

Rex

Length	4 ft.	4½ ft.	5 ft.	5½ ft	6 ft	6½ ft	7 ft.	7½ ft	8 ft
Price Each	$2.80	3 30	3.85	4.45	5 1[illegible]	[illegible]	6.40	7 10	7 80

Great American, Tuttle and Tenon

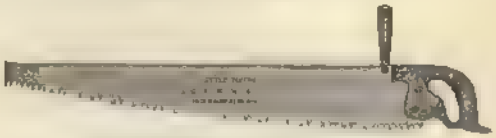
Length	4 ft	4½ ft	5 ft.	5½ ft	6 ft	6½ ft.	7 ft	7½ ft	8 ft
Regular gauge 11x14 gauge	$1 8[illegible]	2 08	2 30	2 54	2 76	3 00	[illegible]	3 46	3 [illegible]
Thin Back 11x18 gauge	[illegible]	2.26	2 50	2 76	3 00	3 26	3 [illegible]	3 76	4 00
Ex Thin-Back, 14x19 gauge	2 50	2 78	3 00	3 26	3 50	3 76	4 [illegible]	4 26	4 50

ONE-MAN CEDAR KING

List Price with Handles

3 ft	3½ ft	4 ft	4½ ft	5 ft	5½ ft	6 ft.
$2 40	2 80	3 20	3 60	4 00	4 40	4 80

ONE-MAN TUTTLE TOOTH



List Price with Handles

3 ft	3½ ft	4 ft	4½ ft	5 ft	5½ ft	6 ft.
$1 80	2 11	2 43	2 71	3 00	3 40	3 61

PATENT CROSS-CUT SAW HANDLES

Climax

One Man

Supplementary Handle for One-Man Saw

Loop

No. 2. Climax.....per pair, $0.35
No. 12. " extra heavy (for Pacific coast) per pair..... .30
No. 1. With wrought iron loop....per pair, .36
No. 8. " malleable " " .... " .20
One man .....per dozen, 3.75
Supplementary Handles for One-Man Saw 2.00

LOADED PAPER SHELLS.

WINCHESTER LEADER AND U. M. C. ARROW.

Loaded with
Dense Smokeless Powder.

Gauge	Grains Powder	Shot Ounce	Size Shot	Per 1,000	Gauge	Grains Powder	Shot Ounce	Size Shot	Per 1 000
12	34 Infallible	1¼	7½ chilled	$52 50	12	24 Ballistite	1¼	7½ chilled	$52 50
12	35 Infallible	1¼	7½ chilled	53 50	12	25 Ballistite	1¼	7½ chilled	53 50
12	36 Infallible	1¼	7½ chilled	53 50	12	26 Ballistite	1¼	7½ chilled	53 50
12	26 Infallible	1⅛	4 chilled	53.00	12	26 Ballistite	1⅛	4 chilled	53 00
12	26 Infallible	1⅛	5 chilled	52 00	12	26 Ballistite	1⅛	5 chilled	52 00
12	26 Infallible	1⅛	6 chilled	52 00	12	26 Ballistite	1⅛	6 chilled	52 00

GUN POWDER.

HAZARD'S.

	Each
Hazard's Rifle, FG, FFG, FFFG, 25 lb. kegs	$5 00
Hazard's Rifle, FG, FFG, FFFG, 12½ lb. kegs	2 75
Hazard's Rifle, FG, FFG, FFFG, 6¼ lb. kegs	1 50
Hazard's Rifle, FFFG, TCT, 25 lb. kegs	5 00
Hazard's Rifle, FFFG, TCT, 12½ lb kegs	2.75
Hazard's Rifle, FFFG, TCT, 6¼ lb. kegs	1.50
Hazard's Blasting, CCC, C, FFF, FF, F, 25 lb. kegs	2 00

DUPONT SMOKELESS.

	Each
DuPont, Shot Gun, Smokeless, 25 lb. kegs	$22 00
DuPont, Shot Gun, Smokeless, 12½ lb. kegs	11.25
DuPont, Shot Gun, Smokeless, 6¼ lb. kegs	5 75
DuPont, Shot Gun, Smokeless, 1 lb. cans	1 00
DuPont, Rifle, Smokeless, No. 1, 1 lb. cans	1 00
DuPont, Rifle, Smokeless, No. 2, 1 lb. cans	1.00
DuPont, Rifle, Smokeless, 30 cal. 1 lb cans	1.25

SMOKELESS SHOT GUN POWDER.

	Each
New Schultze Smokeless, 25 lb. kegs	$22 00
Now Schultze Smokeless, 12½ lb. kegs	11.25
New Schultze Smokeless, 6¼ lb. kegs	5.75
New Schultze Smokeless, 1 lb. cans	1.00

	Each
New E. C. Smokeless, 25 lb. kegs	$22.00
New E. C. Smokeless, 12½ lb kegs	11.00
New E. C. Smokeless, 6¼ lb kegs	5.75
New E. C. Smokeless, 1 lb cans	1.00

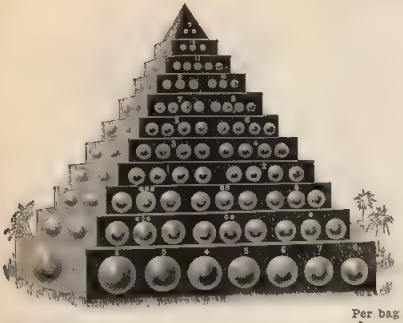
	Each
Laflin & Rand Infallible, 25 lb kegs	$22 00
Laflin & Rand Infallible, 10 lb. drums	9 00
Laflin & Rand Infallible, 1 lb cans	1.00

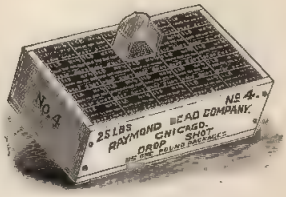
SMOKELESS RIFLE POWDER.

	Each
Laflin & Rand Lightning Smokeless Rifle, 1 lb. cans	$1.25

SHOT, LEAD, DYNAMITE, ETC.

SHOT.



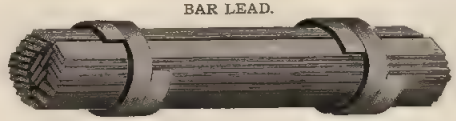


At one cent per pound extra we can furnish shot put up in one pound packages, twenty-five pounds in a box. There are several advantages in having shot packed in this manner, i. e.:

No Loss, { Which occurs in re-weighing from bags. By giving down weight as when selling from the ordinary packages. Of time in delivering to a customer, the necessity of wrapping or tieing up being obviated.

	Per bag
Drop Shot, Nos. 1 to 12	$.....
Drop Shot, Nos. 000 to B	.....
Drop Shot, Nos. Dust	.....
Chilled Shot, Nos. 3 to 10	.....
Buck Shot, Nos. 1 to 8	.....

BAR LEAD.

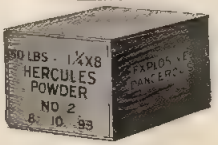


	Per lb.
Bar Lead, 5 oz. bars, in 25 lb. boxes	$.....

ATLAS AND HERCULES DYNAMITE.

ATLAS.

HERCULES.



	Per lb.
D 30 per cent. nitro-glycerine	$0.16
DX 33 per cent. nitro-glycerine	.18
C 40 per cent. nitro-glycerine	.20
CX 45 per cent. nitro-glycerine	.24
B 50 per cent. nitro-glycerine	.28
BX 60 per cent. nitro-glycerine	.30

	Per lb.
2 H 30 per cent. nitro-glycerine	$0.16
2 Star 33 per cent. nitro-glycerine	.18
1 H 35 per cent. nitro-glycerine	.19
2 40 per cent. nitro-glycerine	.20
2 S 45 per cent. nitro-glycerine	.24
2 SS 50 per cent. nitro-glycerine	.28
1 60 per cent. nitro-glycerine	.30

CAPS AND FUSE.

	Per 100
Extra Triple Force Blasting Caps	$1.00
	Per 100 feet
Cotton Fuse	$0.50
Single Tape Fuse	.75
Double Tape Fuse	1.00

ELECTRIC EXPLODERS.

	Per 100
Platinum Fuses, with 4 ft. wires	$3.00
Platinum Fuses, with 6 ft. wires	3.50
Platinum Fuses, with 8 ft. wires	4.08
Platinum Fuses, with 10 ft. wires	4.62

BLASTING TOOLS.

	Each
Wood Augers, 2½ in., with 5-foot shank	$4.50
Dirt Augers, 2½ in., with 5-foot shank	3.50

If wanted without shank, deduct $1.00 from price.

H. Channon Company. Chicago.

AUTOMOBILE REPAIR KITS

The *Channon Auto Kits* are unexcelled and by far the most extensive line on the market. They have been made up with the judgment of long experience which insures their practicability and quality. We believe that the different outfits cover most all requirements, however, *we are prepared to make up Special Outfits and deliver promptly.*

THE PERFECTION KIT

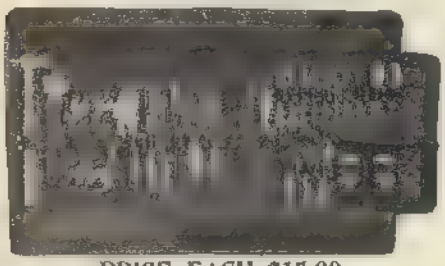
A perfect assortment of high grade tools, complete in every detail, containing in addition to the essential tools, many that will be found of great value in emergencies and for general use, handsomely mounted in heavy brown duck case with retaining straps sewed throughout and indestructible.

We strongly recommend this kit to all dealers for whose customers the best is none too good.

PRICE EACH $20.00 CONSISTS OF 34 TOOLS

No.
1. 3 Sheets Emery Cloth
2. Spool Soft Copper Wire
3. Wire Solder
4. Soldering Copper with Handle
5. [illegible] Flat File with Handle
6. [illegible] Triangular File with Handle
7. [illegible] Square File with Handle
8. [illegible] Round File with Handle
9. 8-inch Half-Round File with Handle
10. 8-inch Flat File with Handle
11. 5-inch Nickeled Combination Pliers.
12. 6-inch Side Cutting Pliers.
13. 5-inch Round Nose Pliers
14. 5-inch Flat Nose Pliers
15. 3-inch Knife Handled Screw Driver
16. 3-inch Knife Handled Screw Driver
17. 2-inch Champion Screw Driver
18. Hardened S Wrench for [illegible] and [illegible]-inch Nuts.
19. Hardened S Wrench for [illegible] and [illegible]-inch Nuts
20. Hardened S Wrench for [illegible] and [illegible]-inch Nuts.
21. Hardened S Wrench for [illegible] and [illegible]-inch Nuts
22. Nickel Plated Pocket Wrench
23. [illegible]-inch Trimo or Stillson Pipe Wrench for [illegible] to 1-inch Pipe
24. 10-inch Auto Monkey Wrench
25. [illegible]-lb. Ball Pein Hammer
26. 100 Assorted Cotters
27. [illegible]-inch Cape Chisel
28. [illegible]-inch Cold Chisel
29. Drive Punch [illegible]
30. Drive Punch [illegible]
31. Drive Punch [illegible]
32. Center Punch
33. Boxwood Rule
34. Soldering Stick

THE "RELIANCE" KIT



PRICE EACH $15.00

This Kit contains all the essential tools for making repairs on the road, together with complete soldering outfit, and *can be relied upon for general use at all times.* Every tool is strictly high grade, fully warranted and especially adapted for purpose intended. Tools are of heavy brown duck with retaining straps securely fastened with double rows of copper rivets.

Consists of 29 Tools

Ball Pein Machine Hammer	Bearing Scraper
W. R. B. Auto Wrench	2 Cold Chisels
2 Hardened S Wrenches	2 Machine Punches
Stillson or Trimo Pipe Wrench	Knurled Center Punch
Heavy Mach. Screw Driver	Cotter Pin Extractor
Perfect Handle Screw Driver	Copper Wire
Soldering Iron	2 File Handles
Nickeled Comb'n Pliers	Side Cutting Pliers
Hand File	Wire Solder
Three-Cornered File	Ass't'd Lock Washers
Round and Square File	Assorted Cotters

THE "RIVAL" KIT

PRICE EACH $10.00

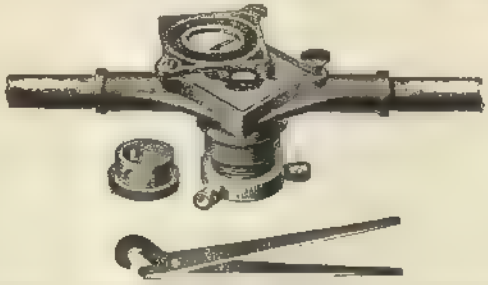
This outfit contains *the most essential tools.* Every one is indispensable and fully warranted. Mounted in a heavy dark case, with double riveted retaining straps. As a practical outfit this kit rivals any on the market.

Consists of 22 Tools

2 Knife Handled Screw Drivers	Side Cutting Pliers
	Copper Wire
Nickeled Comb'n Pliers	File Handle
3 Hardened S Wrenches	Assorted Cotters
Auto Monkey Wrench	4-inch Flat File
Ball Pein Hammer	8-inch Round File
Stillson Pipe Wrench	Knurled Center Punch
Half-Round File	Cotter Pin Extractor
2 Cold Chisels	Drive Punch

SPECIAL PIPE CUTTING AND THREADING OUTFIT

For Pipe to 2-inch Diameter, Inclusive

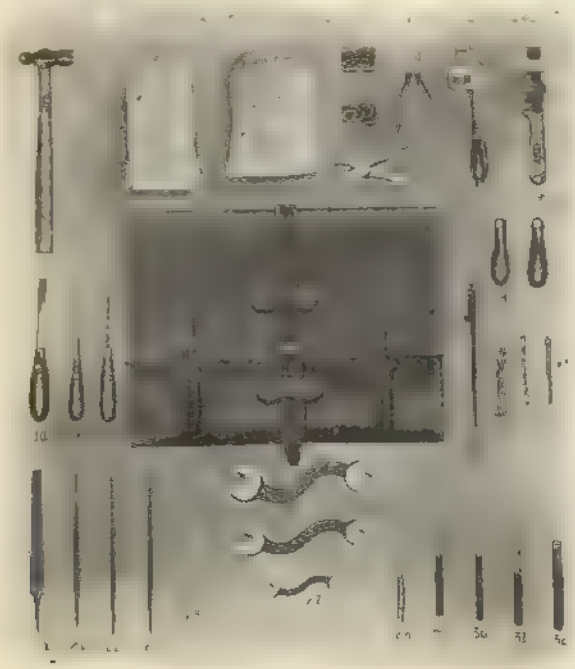


List price for complete outfit, $25.00, f. o. b. Chicago, consists of

1 No. OA Malleable Hinged Pipe Vise. Holding pipe from ⅛ inch up to ¾ inches inclusive
1 No. 1 Barnes 3 wheel Pipe Cutter. Cutting pipe from ⅛ inch up to ¾ inch inclusive
1 No. 2 Barnes 3 wheel Pipe Cutter. Cutting pipe from ½ inch up to 2 inches inclusive.
1 Channon's Special Pipe Stock and Dies. Threading pipe from ⅛ inch up to 2 inches inclusive
1 10-inch Stillson Wrench. For pipe up to 1 inch inclusive
1 18-inch Stillson Wrench. For pipe up to 2 inches inclusive.
1 Pair Common Pipe Tongs. For pipe up to 2 inches inclusive.

THE UTILITY TOOL KIT

This is the most practical outfit on the market containing all of the tools required by the automobile owner for general shop and road use and, in addition, an assortment of spring cotters and nut locks a pair of gloves and a bag of waste which will be highly appreciated by the operator will also be found of great value to the householder for general use around the house. Each article is held securely in place by retaining straps. The case is made of handsome Brussels carpet, with fine black leather binding, and has been designed to meet the demand for one that can be utilized not only to hold the tools furnished, but is complete with covered inside pockets in which to keep the many small knick-knacks and larger articles can be placed in the body of the bag. The "Utility" Kit offers a place for everything, and every thing in its place. **Being flat, it can be put anywhere.**



Price, Each, $18.00

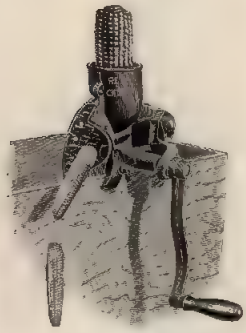
List of Tools

No.
1. Ball Pein Machinists' Hammer
2. Pair of Canvas Gloves
3. Bag of Extra Fine White Waste
4. Assorted Spring Cotters.
5. Assorted Nut Locks
6. 8-inch Nickel Combination Pliers
7. 6-inch Side Cutting Pliers
8. 10-inch Stillson or Trimo Pipe Wrench.
9. 10-inch W. & B. Auto Wrench
10. Heavy Machinists' Screw Driver
11. 5-inch Perfect Handle Screw Driver
12. Bearing Scraper.
13. Utility Tool Bag
14. No. 4 File Handle
15. No. 3 File Handle
16. Soldering Iron, tinned ready for use.
17. Self-Fluxing Wire Solder
18. No. 18 Copper Wire.
19. No. 20 Copper Wire.
20. 8-inch Flat File.
21. 8-inch Triangular File.
22. 8-inch Round File.
23. 8-inch Square File.
24. Cotter Pin Extractor.
25. Hardened "S" Wrench for ⅝-inch and ¾-inch Standard Nuts.
26. Hardened "S" Wrench for ⅜-inch and ½-inch Standard Nuts.
27. Hardened "S" Wrench for ¼-inch and 5/16-inch Standard Nuts
28. Knurled Center Punch.
29. Medium Drive Punch.
30. ¼-inch Cold Chisel.
31. Small Drive Punch.
32. ½-inch Cold Chisel

CORN SHELLERS.

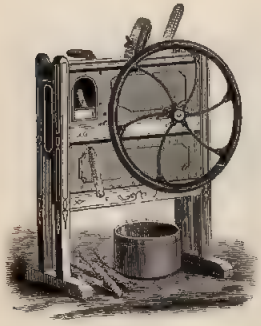
IRON KING.

RED CHIEF.

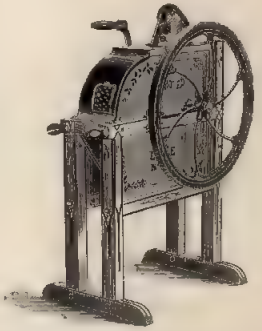


	Per dozen
Iron King, Malleable Iron, Japanned, Adjustable to all Sized Ears, and Pop Corn, Capacity 6 to 8 Bushels per Hour	$15.00
Red Chief, Malleable Iron, Red Japanned, Adjustable to all Sized Ears	29.00
Black Hawk, Malleable Iron, Black Japanned, Adjustable to all Sized Ears	34.00

EAGLE ONE-HOLE.



IMPROVED EAGLE.



No. 1. With Side Delivery, Wrought Spoke Fly Wheel, Thoroughly well Constructed, Weight 130 lbs.

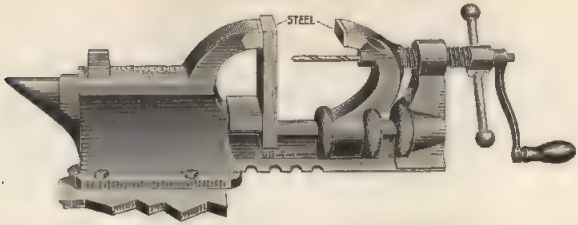
	Each
Without Fan, Feed Table or Pulley	$10.00
With Fan Attachment	11.00
Feed Table Extra	.50
Pulley Extra	1 00

No. 3. Sheller and Separator, Heavy Wrought Spoke Balance Wheel, Light Running, Inside Gearing, Adjustable Spring to receive and shell any sized Ear, Weight 130 lbs.

	Each
Without Fan, Feed Table or Pulley	$10.00
With Fan Attachment	11.00
Feed Table Extra	.50
Pulley Extra	1.00

VISES.

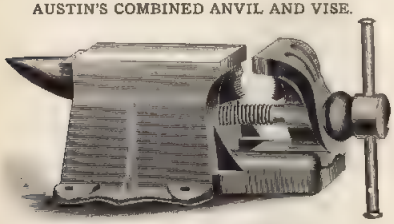
BANNER TOOL COMBINATION.



Combined Vice, Anvil, Drill and Hardy, height 8½ in., widths of Jaws 3½ in., Jaws open 6 in., depth of throat 5½ in., Jaws are faced with steel and polished; top of anvil is case-hardened and polished, steel Hardy. The drill will take any common sized square shank drill Bit; T Rail Draw Bar. Each

Banner Tool Combination Vise, weight 50 lbs. $5.00

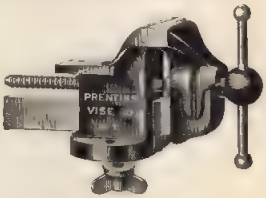
AUSTIN'S COMBINED ANVIL AND VISE.



Cast Iron, Hardened Polished Face, ⅞ in. Screw, 10 in. Long Face of Anvil, 3 x 7 in.

No	3
Width of Jaws, in	3
Opens, in.	4
Weight each, lbs.	30
Each	$3.00

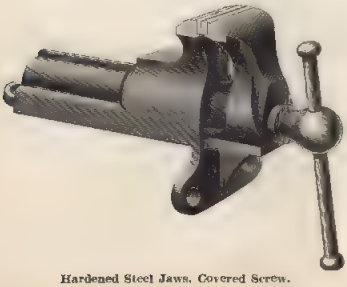
SHEPARD'S NEW STATIONARY.



Can be used as either Stationary or Swivel Bottom Vise. Is also provided with bolt holes for permanently securing to bench.

Nos.	161	161½	162	163
Width of Jaws, in.	2½	3	3½	4
Opens, in.	3	3½	4	6
Weight each, lbs.	10	12	16	30
Each	$2.00	2.40	2.75	4.00

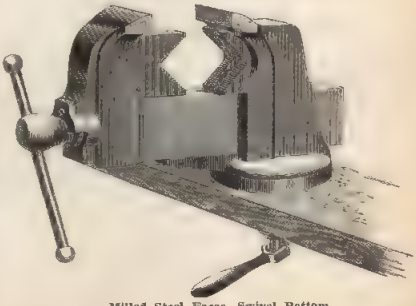
OVAL SLIDE.



Hardened Steel Jaws, Covered Screw.

Width of Jaws, in.	2	2½	3	3½	4
Opens, in.	3	3¼	4½	5¾	6¼
Weight each, lbs.	7½	11½	18	23	37
Each	$2.50	2.70	3.60	4.65	6.70

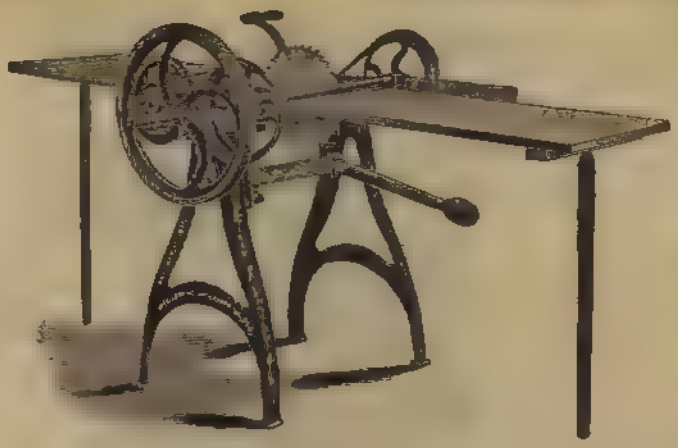
PARKER'S COMBINATION PIPE.



Milled Steel Faces, Swivel Bottom.

		Each
No. 87.	Round and Pipers Jaws, for Holding 2 in. Pipe and under, 3⅝ in. Jaws, Weight 41 lbs.,	$16.00
No. 88.	Round and Pipers Jaws, for Holding 3 in. Pipe and under, 4½ in. Jaws, Weight 59 lbs.,	20.00

CIRCULAR RIP SAWS.



Showing No. 11 Circular Rip Saw with the Front Table Placed Directly over the Saw.

BARNES', HAND. Each

No. 11—Painted Cast Iron Frame, Fly and Gear Wheels, Crank and Idler; Steel Axles and Shafts; Polished and Tempered Tool Steel Saws, for Ripping Hard or Soft Wood of any Thickness up to 3¾ inches, and any Width up to 19 inches. Fitted with Two Rollers which feed the Lumber to the Saw. Rollers are **Self-Adjusting to Thick or Thin Lumber by means of the Idler; Two Hardwood Tables; The Front** Table can be placed directly over the Saw and being provided with an Adjustable Width Gauge can be used for cutting Rabbets, Bevels, Tenons, etc., By using Two Saws side by side, Grooving, Window **or Door Stop Work can be done; An Extra Saw is furnished for this purpose; Diameter of Fly Wheel 18** inches, 1⅜ inches Thick at Rim; Diameter of Saws 10 inches, Height to Top of Table 25 inches, Height **over all 43 inches; Width over all 31 inches; Length over all, including Two Tables, 79 inches.** Weight each about 190 lbs.; Weight boxed about 275 lbs. $40.00

Packed in Two Cases.

CIRCULAR SAWS.

BARNES', CIRCULAR. Each

No. 4—Painted Iron Frame and Gear; Complete with Self-Feed, with TWO 10 INCH CIRCULAR SAWS (one each Rip and Cross-Cut); Height over all 36 inches; Floor Space required 36x34 inches; Length over all with Extensions, 90 inches. $60.00

Weight Boxed for Shipment about 400 lbs.

Packed One in a Crate.

It is a Combined Foot and Hand Power Circular Saw, which can be used for Rip or Cross Cut Sawing; the Self-Feed can be Regulated properly for hard or soft, thick or thin Lumber, and is Self adjusting for lumber of different or uneven thickness; Lumber up to 3½ inches can be Ripped with the 10-inch Saw.

The Self-Feeding Mechanism can be instantly thrown back to the rear of the Machine, as also the Rip Gauge, leaving the Table perfectly clear for Cut-off Work; The Cut-off Gauge can be set at any required angle.

The Speed can be regulated to give High Speed for Cross-Cut Work or a Slower Speed for Ripping.

FOOT POWER FORMERS.

BARNES', IMPROVED. Each

No. 29—WITHOUT KNIVES; Painted Cast Iron Frame, Seat, Gear Wheels, Cranks and Pedals; Steel Axles and Shaft; Plain Finish Hardwood Table; Size of Table 15x19½ inches; Floor Space required 20x26 inches; Height over all 42 inches; Adapted for Moulding Edges of Brackets, Scroll Work, Panel Work and Mouldings of all Styles up to ⅞ inch; The Speed of the Knives is from 2000 to 2500 Revolutions per minute; The Knives can be revolved in either direction. Table can be lowered to give 2¼ inch Space between it and the Lower Edge of Knife. $20.00

Weight Boxed for Shipment about 110 lbs.

MORTISING MACHINES.

BARNES'.

Each

No. 33—Complete with 1 Mortising Chisel each, Sizes ¼, ⅜ and ½ inch; Painted Cast Iron Frame, Legs and Bed; Steel Foot Lever, Plunger and Set Screws; Hardwood Bed Face; Length of Bed 22 inches; Length of Bed Face 39 inches; Floor Space required 27x27 inches; Height over all 53 inches.....$23.00

Weight Boxed for Shipment about 170 lbs.

One in a Case.

MORTISING MACHINE CHISELS.

BARNES'.

Forged from Finest Tool Steel; Polished Blade; Natural Finish Shank; Length 6 inches. Fits Barnes' Mortising Machine No. 33.

Sizes	1/4	5/16	3/8	7/16	1/2
Each	$1.00	1.00	1.00	1.00	1.00
Sizes	9/16	5/8	3/4	7/8	1
Each	$1.00	1.00	1.00	1.00	1.00

Weight Each about 5 ozs.; Packed Loose.

COMBINED MACHINES.

BARNES', IMPROVED.

Each

No. 18—Painted Iron Frame and Gear; CIRCULAR SAWS ONLY, including 2 Circular Saws, 1 Rip and 1 Cross-Cut; Height over all 37 inches; Floor Space required 28x30 inches; Weight Boxed for Shipment about 335 lbs... $35.00

No. 15—Painted Iron Frame and Gear; COMBINED CIRCULAR AND SCROLL SAWS, including 2 Circular Saws and 12 Assorted Scroll Saws; Height over all 37 inches; Floor Space required 28x30 inches; Weight Boxed for Shipment about 335 lbs..... ..... 40 00

No. 17—Painted Iron Frame and Gear; COMBINED CIRCULAR, SCROLL SAWS AND BORING ATTACHMENTS, including 2 Circular Saws, 12 Assorted Scroll Saws, the Boring Attachment with Self-Centering Drill Chuck, all combined in one Machine; Height over all about 37 inches; Floor Space required 28x30 inches; Weight Boxed for Shipment about 375 lbs. 50 00

When either the Circular Saw, Scroll Saw or Boring Machine is ordered separate, the other Parts can be furnished, if the Number of the Machine is given.

For Light Ripping, Cutting to Length, Cut-off Work, etc., the Circular Saw of the Combined Machine is Invaluable. The Circular Saw, while remaining on its Mandrel, can be taken at once out of the way when the Scroll Saw is to be used; The Mandrel is Set in its Bearing in such a manner as to enable the operator to take the whole (Mandrel and Saw) from the Machine in an instant.

All Varieties of Joint Work can be done truly and rapidly. The Table can be handily Adjusted up or down by a Crank to allow any desired Depth of Cut being made by the saws or Cutter Tools; The Circular Saws are Six inches in Diameter, and Reach 1⅝ inches above the Table; A Seven or Eight inch Saw can be used if desired.

Emery Wheels, in size up to One inch Face by Six inches in Diameter, can be used to good advantage on this Machine.

Packed in Two Cases.

‡LATHES.

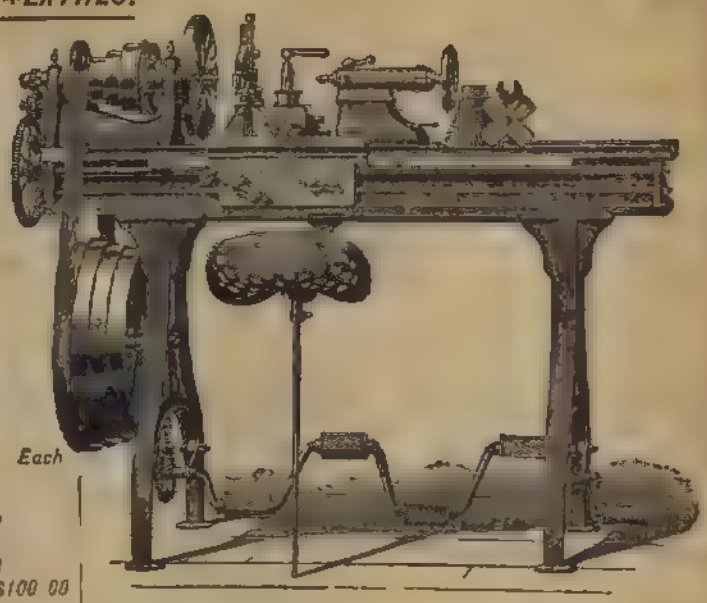
‡BARNES', with Velocipede Foot Power.

	Each
‡No. 113—VELOCIPEDE (Factory No. 5); Painted Iron Frame, Gear and Pulleys; Distance between Centers 34 inches, Swings 11 inches; Height over all 48 inches; Floor Space 24x54 inches; Weight Each about 385 pounds; Boxed for Shipment about 500 pounds	$100.00
‡No. 115—VELOCIPEDE (Factory No. 5); Painted Iron Frame, Gear and Pulleys; Distance between Centers 40 inches, Swings 11 inches; Height over all 48 inches; Floor Space required 24x64 inches; Weight Each about 420 pounds; Boxed for Shipment about 530 pounds	105.00
‡No. 129—Fixtures to raise the Head and Tail Stocks, Extra and Tool to bore out and swing 17 inches in diameter	$10.00
‡No. 131—Hand Rest, with Sockets for Hand Turning	3.00
‡No. 133—Countershaft only for above	15.00

Swings 6⅝ inches over the Tool Carriage; With its Back-Gearing and Cone Pulleys the Lathe has a Great Range of Speed.

The Head Stock has a Steel Spindle with 15/32 inch Hole through its Entire Length; The Boxes are accurately fitted to the Spindle, with provision to keep them true and to take up Wear; The Tail Stock can be readily set at any desired point, or taken altogether from the Lathe Bed, thus leaving it free for Face Plate or Chuck Work; It can also be set over for Turning Tapers. The Spindles of both Head and Tail Stocks are of Steel, with positively true Taper Holes for the reception of the Centers, and the Tail Stock Center is Self-Discharging; The Tool Carriage is Gibbed to the Bed; Not made with Automatic Cross Feed; On a Small Lathe, less than 15 or 16 inches Swing, Automatic Cross Feed is of no particular advantage; The Tool Carriage Swivels so that the Tool can be set to work at any desired angle and it also adapts the Lathe for Taper Boring; These Features are of Greater Value than Automatic Cross Feed; All the Works are securely protected from chips and dirt, thus insuring long wear and durability to the most costly and vital parts of the Lathe. It is indexed for Threads 4 to 40, and the Change Gears furnished can be combined for many other Threads; As a Right or Left Screw Cutting Lathe it is perfect; all the Gearing is Cut from Solid Metal in the Best Machinery known for Gear Cutting, and is as True and Noiseless as it is possible for Metal Gearing to be.

BED—Extra Length. The Dimensions of No. 113 Velocipede Lathe are in true proportion; Gunsmiths and others often require a Greater Length of Bed, and do not care for Proportionate Strength in other parts; For such we can furnish a Bed that will admit of 40 inches between Centers. See No. 115.



‡BARNES', with Velocipede Foot Power.

(Factory No. 5½); Painted Iron Frame, Gear and Pulleys; Swing on Face Plate 13 inches; Swing over Carriage 8 inches.

Nos.	‡137	‡139	‡141
Length of Bed, feet	6	7	8
Distance between Centers, inches	45	57	69
Height over all, inches	48	48	48
Floor Space Required, inches	24x72	24x84	24x96
Weight of Lathe about, pounds	690	740	790
Weight Boxed about, pounds	850	890	950
Each	$145.00	155.00	165.00

	Extra
‡No. 195—Countershaft only, for Lathes Nos. 137 to 141	$20.00
‡No. 163—Hand Rest, with Sockets, for Hand Turning	3.50

Nos. 137 to 141 Lathes are designed to do as large work as it is practical to do by foot power; They are Strong, Substantial Lathes for a job or manufacturing shop where the demand on a Lathe is from the Smallest to the Largest Work.

Patent Twin Screw Feed and Screw Cutting Combination, which makes Change of Feed in the Tool Carriage instead of in the Head Stock; This greatly simplifies and reduces the number of parts commonly used for these purposes.

The Tail Stock has Side Movement to Adjust Centers for Turning Tapers; The Head Stock has Hollow Spindle for Rods up to ½ inch; All the Gearing is Cut from Solid Metal; They are Indexed for Threads 4 to 36, and the Change Gears furnished can be combined for many other Threads.

WHEN IT IS POSSIBLE TO DO SO, CHUCKS SHOULD BE FITTED TO THE LATHES BEFORE BEING SHIPPED.

‡Goods marked thus (‡) are not carried in stock and can only be furnished by shipment direct from factory.

LATHES.

BARNES', BENCH.

Drab Painted Cast Iron Heads, Slide Rests, Feet, Pulley and Hand Wheels, Steel Face Plate, Axles and Bolts; Designed for Wood Turning; will take in Stuff 12 inches in Diameter and 3 feet Long, Speed can be varied from 1000 to 2000 Revolutions per minute.

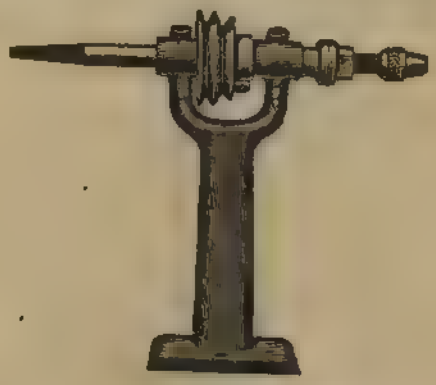
Each

No. 59— Factory No 31, Hardwood Bed 54 inches Long, 4 inches Thick; Diameter of Pulley 5 inches; Width of Pulley Face 1¾ inches; Length of Slide Rests, 1 each 9 inches and 5 inches; Height over all 16¼ inches; Diameter of Face Plate 4½ inches; Weight each about 75 lbs. $20 00

One in a Case.

WHEN IT IS POSSIBLE TO DO SO, CHUCKS SHOULD BE FITTED TO LATHES BEFORE BEING SHIPPED.

POLISHING LATHE HEADS.



Each

No. 2—Japanned Cast Iron Base and Frame; Polished Steel Axle Pulleys; Clamp, Chuck and Taper Threaded Spindle; Diameter of Spindle ⅝ inch; Height 6¾ inches; Length of Spindle 2¾ inches; Diameter of Pulley 1¾ inches; Length of Shaft over all 8 inches; Size of Base 3x3 inches; Weight each about 1⅞ lbs. $2.50

Packed Loose.

SCREW CHASERS.

Finest Tool Steel.

Inside Chaser.

Outside Chaser.

								Per Pair
For Chasing Screws in the Lathe, by Hand, of the following Number of Threads to the inch	7	8	9	10	11	11½	12	
	13	14	16	18	20	22	24	$1.50

Weight per Pair about 8 ozs.

IF SINGLE CHASERS ARE WANTED, SPECIFY WHETHER INSIDE OR OUTSIDE WHEN ORDERING.

Packed Loose.

MICROSCOPES

No. A1. The Practical Microscope.

No. 1401.

No. 1407.

No. 1403.

THE PRACTICAL MICROSCOPE.

This microscope is designed to meet the popular demand for a reliable, low-priced instrument. We can confidently recommend it to the jeweler or druggist as a salable instrument that will give perfect satisfaction. It is intended for the home circle and school purposes, being also specially adapted for many industrial purposes, such as the examination of starches, sugars, drugs, chemicals, leather, silks, fibers, fabrics of all kinds, pork for trichinae, paper, paint, polishes, etc. It is especially useful for examining all foods, milk and water, intended for home consumption.

At any time other objectives may be added, increasing the power of the instrument, as all high grade lenses fit this instrument, which is made with the society screw.

No. A1 Microscope with 1 eyepiece and ⅓-inch divisible objective giving 44 to 155 diameters ..... each $24.00

No. A4 Same as 0A1, but with 1-5 inch objective added, increasing magnification to 505 diameters ..... each $37.00

BOYS' MICROSCOPES.

No. 1400 Brass upright compound microscope, single lens objective, in mahogany box, with one mounted object, one pair tweezers, two glass slips ..... each $3.10

No. 1401 Brass upright compound microscope, triple lens objective, separable, giving three different powers, viz., 35 diameters for examining larger objects, and 52 and 58 diameters for smaller objects; in mahogany box, one mounted object, one pair tweezers, two glass slips ..... each 5.00

No. 1403 Brass compound microscope, mounted on jointed iron foot, so that it can be inclined to an angle, two lenses giving powers of 58 and 80 diameters respectively; mahogany box, one mounted object, one pair tweezers, two glass slips ..... each 6.00

No. 1405 Brass compound microscope, mounted on jointed iron foot, allowing inclinations to any angle triple lens separable, giving powers of 85 to 160 diameters; mahogany box, mounted object, tweezers, two glass slips. Each 8.00

No. 1406 Same as 1405, but with condensing lens in front for illuminating opaque objects. Each 9.00

No. 1407 Same as 1405, but with condensing lens and with rack and pinion for adjusting to focus ..... each 12.50

BH

Bausch & Lomb Continental Microscope.

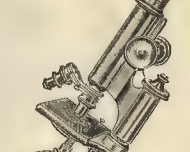
The BH microscope combines these features which make an instrument most useful for student work where low and medium powers are required. It has our regular diagonal rack and pinion coarse adjustment, standard micrometer screw fine adjustment, joint for inclination and draw tube with, society screw. The stage is nickled metal and is provided with revolving diaphragm with apertures of various diameters. Plane and concave mirrors mounted on an adjustable arm give control of the illumination.

This instrument is very durably made and neatly finished, in addition its simplicity of construction makes it desirable for young students. For these reasons it has found its way into a large number of high school and college laboratories.

Furnished in polished cherry case with handle and lock.

PRICE LIST

Catalog No.	Objectives. Dry	Eyepieces.	Nosepiece	Price
B 1	3-8, 1-6	1 in.		$30 00
B 2	2-3, 1-6	1 in.	Double.	40 00
B 3	2-3, 1-6	16 in., 1 in.		58 00
B 4	2-3, 1-6	16 in., 1 in.	Double.	64 00



BB

Bausch & Lomb Continental Microscope

The BB is our most popular microscope.

The stand is of brass throughout to stage, base is lacquered with black acid and alcohol proof lacquer. The joint has steel stops for holding the body parallel with base when photographing. The screw substage permits the use of condenser and has iris diaphragm working in the plane of the stage. The mirror plat and concave are extra large.

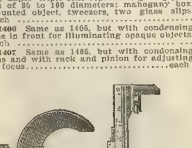
Coarse adjustment is by standard rack and pinion. Fine adjustment by micrometer screw with graduated screw head. Has nickeled draw tube graduated in millimeters and sliding in cloth lined sleeve.

The BC microscope has complete substage. Add $50 00 for BC 1, 2, 3 and 4, and $20.00 for BC 7 and 8, respectively, to prices for the same BB outfits.

Each BB and BC microscope is furnished in polished wood carrying case with handle and lock.

PRICE LIST.

Catalog No.	Objectives	Eye-pieces	Nose pieces	Abbe Cond'n'r	Price
BB 1	2-3, 1-6	1 in.			$37 00
BB 2	2-3, 1-6	1 in.	Double		51 00
BB 3	2-3, 1-6	2 in., 1 in.			72 00
BB 4	2-3, 1-6	2 in., 1 in.	Double		84 00
BB 5	2-3, 1-6	1 in.	Double	N.A. 1.20	99 00
BB 6	2-3, 1-6	2 in., 1 in.	Double	N.A. 1.20	99 00
BB 8	2-3, 1-6, 1-12	2 in., 1 in.	Triple	N.A. 1.20	108 00

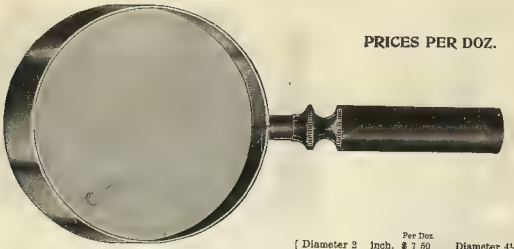


Attachable Mechanical Stage.

New construction, attachable to any microscope of Continental pattern, rack and pinion movements of extraordinary range, being 35 and 60 mm., respectively. The millimeter graduations permit the slide being systematically searched and any point accurately recorded. Adjustable stop and freely movable finger admit use of slides of various sizes. This stage should form part of every outfit.

No. 2114 Attachable Mechanical Stage, in velvet lined morocco case ..... each **$30.00**

READING GLASSES.



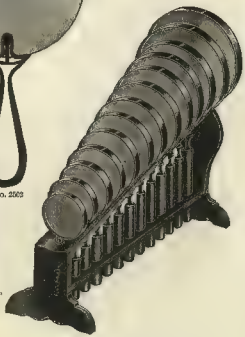
PRICES PER DOZ.

No.		Per Doz.		Per Doz.
2500. Wood handle, ebonized, nickeled German silver rims, 1st quality lenses, extra finish	Diameter 2 inch,	$ 7 50	Diameter 4½ inch,	$30 00
	" 2½ "	9 00	" 5 "	36 00
	" 3 "	12 00	" 5½ "	50 40
	" 3½ "	15 00	" 6 "	60 00
	" 4 "	24 60		
2510 Same as above, but German make, cheaper quality and lower power	Diameter 2 inch,	$ 3 60	Diameter 4 inch,	$14 40
	" 2½ "	5 40	" 4½ "	19 00
	" 3 "	7 20	" 5 "	24 50
	" 3½ "	10 80		

All orders filled same day received. No Delay.

No. 2520.

No. 2502



No.		Diam.	Per Doz.
2520	Extra quality, with pearl handles and fine gilt trims.	2⅝ in.	$44 00
		3¼ "	54 60
		3¾ "	69 80
		4¼ "	93 50

RACK ONLY. No. 11

READER RACKS.

No 11 Walnut rack, for holding 13 readers, Each $2 00

No 22 Nickeled rack, for holding 6 readers. Each 1 50

No. 2505

		Per Doz.
No. 2502	2 in. diameter, 4 in. focus	$19 70
No. 2503	2½ in. diameter, 5 in. focus	21 70
No. 2504	3 in. diameter, 6 in. focus	23 70
No. 2505	Diameter 30 lignes, 2½ inches	15 50
	" 36 " 3¼ "	17 00
	" 42 " 3½ "	25 50

TOYS—Continued

BELL TOYS Continued

We do not break packages

No. 86820

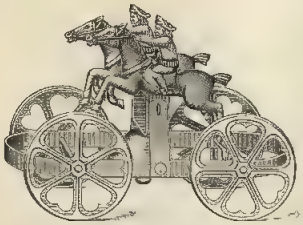
No. 86087

No.		Per doz
86820	2 metal bells on wheels, wooden handle, length 18 inches, 1 dozen in package	$1 60
86087	Bell chime 2 large wheels with platform on axle, hammer which strikes each bell at every revolution of wheel, 6 in box, not broken	4 00

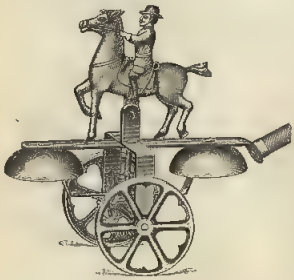
No. 86082 No. 86089

CHIMES

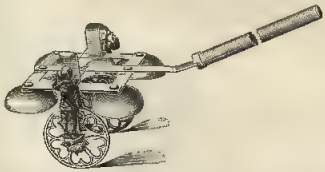
No.		Per doz
86082	Roller chime, colored tin with detachable handle, barrel shape, full length 20 inches	$4 00
86089	Bell chime 2 mounted wheels, chenille tires, double nickeled on axle, diameter of wheel 3½ inches	4 00



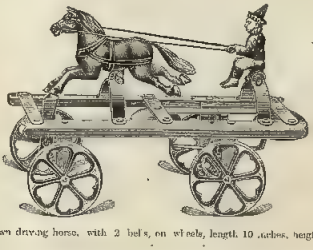
No.		Per doz.
86821	Floor chimes, metal 2 horses and bell on wheels length 6½ inches	$4 00



No.		Per doz.
86822	Rough Rider chime 2 gongs with handle, length 22 inches, ½ dozen in box	$4 00

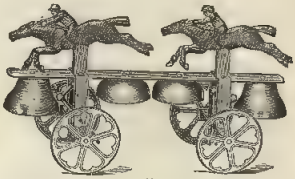


No.		Per doz.
86823	Floor chime, metal, 4 bells on wheels, length 20 inches	$4 00



No.		Per doz
86824	Clown driving horse, with 2 bells on wheels, length 10 inches, height 7 inches	$8 00

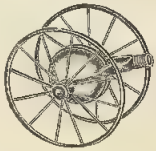
No. 86853 and 86854



No. 86825

No.		Per doz.
86825	Floor chimes, metal, 2 horses and bell on wheels length 6½ inches	$8 00
86853	Wooden floor chime with metal handle, diameter of wheels 4½ inches, length 23 inches	4 50
86854	Same as No. 76323, diameter of wheel 6½ inches, length 23 inches	8 50

No. 86083 and 86084

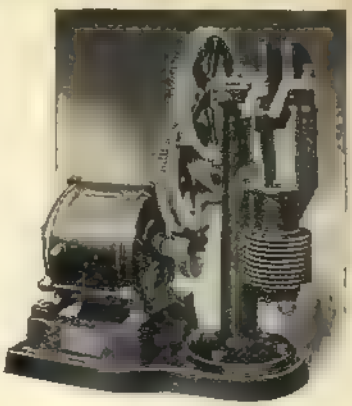


No. 86085

No.		Per doz
86083	Bell chime, metal wheels, chenille tires, diameter of wheels 3 inches, full length 21 inches, 6 in box, not broken	$4 00
86084	Same as No. 86083, diameter of wheel 5½ inches, full length 30 inches	8 00
86085	Bell chime, 2 metal wheels, bell mounted on axle diameter of wheel 5 inches full length 27 inches	8 50

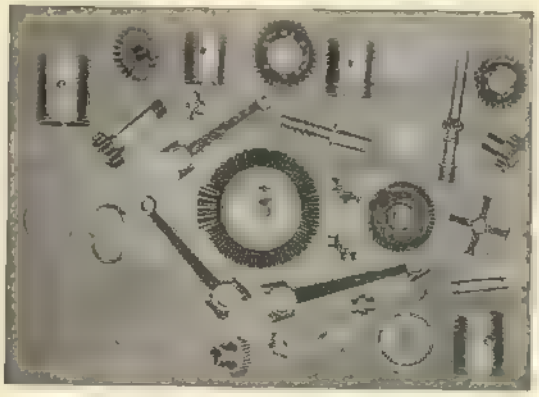
AIR COMPRESSORS

BELTED—MOTOR DRIVEN



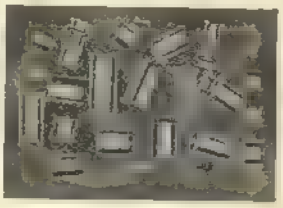
Single and Three Cylinder Styles.

Just the thing for public or private garage for inflating tires, cleaning cushions, etc.



Let us make your automobile and motor machine parts, like those shown in the cut.

We can make them better and cheaper, and give you prompt deliveries.



Finished Die-Cast Bearing Bushings made to specification.

We make up much of this material for the account of the largest builders in the country.

Let us submit estimates based on your specifications and blue prints.

THE F. W. SPACKE MACHINE CO.

INDIANAPOLIS, IND., U. S. A.

AUTOMOBILE PARTS

SILVER PLATED HOLLOW WARE.

CRACKER JARS. QUADRUPLE PLATED.

No. **402-GT**, Assortment 2½, Each, $2 75

Decorated on Bisque. Square Jar.

Round Cracker Jar. Assorted Decorations on Bisque, Round Jar.

No. **352**, - - Each, $3 00

No. **67**, - - Each, $2 50

Satin Engraved.

Square Cracker Jar, Fancy Assorted Colored Glass, Quadruple Silver Plate Mounting, Full Hand Burnished, the Plate guaranteed for ten years.

No. **244**, - - Each, $3 00

MORLEY-MURPHY HARDWARE COMPANY, GREEN BAY, WIS.

BLACKSMITH'S POST DRILLS

THE CHAMPION No. 92 DRILL

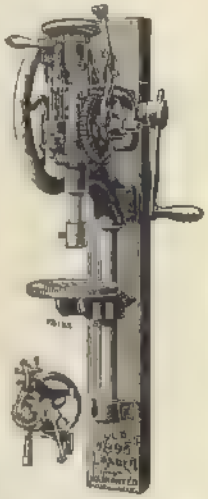
No. 92. Champion Drill has hand feed without fly wheel or back gearing. Drills to center of 12-inch circle. Spindle ⅞-inch in diameter with up-and-down run of 8 inches. Bored for ½-inch straight shank bits, if specially ordered 41/64-inch.

No. 92. Champion Hand-Feed Post Drill. Weight 65 lbs.....$6.00

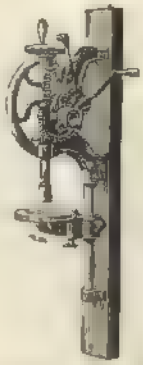
THE CHAMPION No. 96 QUICK SCREW RETURN SELF-FEED DRILL

No. 96. Champion Quick Screw Return Self-Feed Drill. Has three gears, two speeds. Crank turns same direction on both the speeds. Has back gears with double journal bearings all ground out of the solid metal. The screw quick return is handled by an automatic lever. Drills to the center of a 15½-inch circle. Spindle bored for ½-inch straight shank bits, if specially ordered 41/64-inch. Drills holes up to 1¼ inches.

No. 96. Champion Quick Screw Return Self-Feed Drill.
Weight 135 lbs... ...$12.50
Extra for Power. 5.00



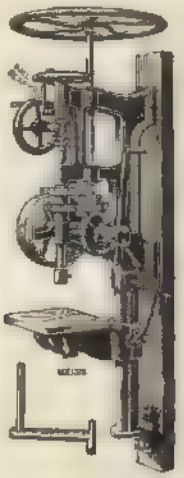
THE CHAMPION No. 98 SELF-FEED DRILL



No. 98. Champion Self-Feed Drill has one speed and is back-geared. Has slotted lathe-turned table. It is a well-made Drill in every respect. Drills to the center of a 14-inch circle. Spindle 1-inch in diameter, with up-and-down run of 8 inches. Bored for ½-inch straight shank bits, if specially ordered 41/64-inch. Drills holes up to 1 inch.

No. 98. Champion Self-Feed Post Drill. Weight 95 lbs $8.00
Extra for Power..... ... 3.00

THE CHAMPION No. 7 IMPROVED SELF-FEED DRILL



No. 7. Champion Improved Self-Feed Drill. Has cut gears and ball bearings. Has double back gears. Has rack for raising and lowering the table and wheel hanger. Drills to center of 21-inch circle. Spindle has up-and-down run of 5½ inches. Bored for 41/64-inch straight shank bits, if specially ordered, bored for ½-inch. Drills holes up to 1½ inches.

No. 7. Champion Improved Drill. Weight 325 lbs.....$40.00

No. 7. Champion Improved Drill with tight and loose pulleys for power and hand.
Weight 340 lbs.....$44.00

"AUTOMATIC" SELF-FEED AND LEVER-FEED DRILLS

Combination Automatic Self-Feed and Lever-Feed Drill. Patent No. 767 282, August 9, 1904.

No. 200. Has third gear principle, the second speed has the same crank motion as the first speed. Drills to center of 16-inch circle. Spindle is 1¼ inches in diameter, has an up-and-down run of 4 inches, bored to take ½ inch straight shank bits. Drills holes up to 1¼ inches.

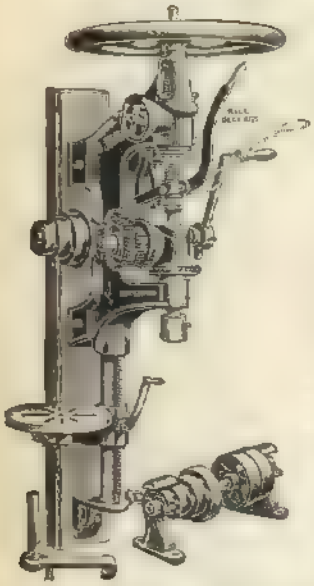
Weight 160 lbs. Price... ..... $25.00
Extra for Power... 3.00

No. 200½. Has double back gears for light and heavy work; changed from one to the other in an instant. It is well built and the most powerful and easiest running medium priced drill built. Has ball bearings. Drills to center of 18-inch circle. Spindle 1¼ inches in diameter, has an up-and-down run of 4 inches, bored to take ½ inch straight shank bits; drills up to 1½ inches. Weight 225 lbs.
Price, each $30.00
Extra for Power 4.00

No. 201. Has cut gears and ball bearings. Its double back gearing for light and heavy work is powerful and is changed from one to the other in an instant. It has a rack for raising and lowering the table which is quick in action and can be stopped at any point. It has a wheel hanger for drilling tire. Drills to center 21-inch circle. Spindle is 1½ inches in diameter, has an up-and-down run of 5½ inches, bored to take in ½-inch straight shank bits. Drills up to 1½ inch hole. Weights 325 lbs.
Price each $40.00
Extra for tight and loose pulleys for power..... .....$4.00

Automatic Self-Feed and Lever-Feed Drills No. 200, 200½ and 201 are carried in stock with spindles bored to take ½ inch straight shank bits. If especially ordered can be bored for 41-64 or 5-8 inch straight shank bits.

SELF-FEED AND LEVER-FEED DRILLS



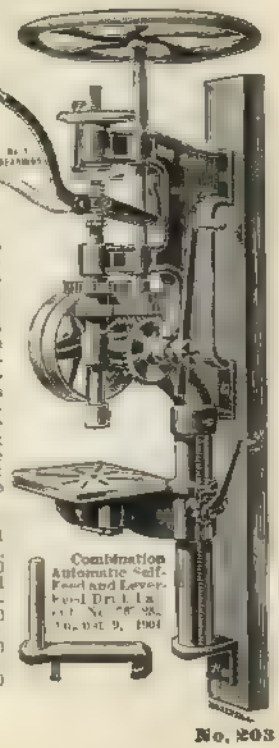
No. 202 Champion "Patented" Self-Feed and Lever-Feed Upright Post Drill. It has machine-cut double sliding back gears. By simply sliding the gears, changes from single to back gear. All end friction taken from the spindle by use of ball bearings, fly-wheel also spins on ball bearings. The Lever is adjustable, giving operator the advantage of different leverages. (For Foot-Power Feed see below.) Has rack for raising and lowering table and wheel-hanger for drilling tires. Has spindle bored like Never-Slip or Kant-Slip Chuck to take in ¾-inch straight shank bits. If specially ordered will be bored to take in ½-inch [illegible] Drills holes from 0 to 1½ inch. Feed screw has an up-and down run of 6 inches.

No. 202 New Champion Upright Post Drill with Cone Pulleys and Countershaft complete for Power and Hand. Weight 440 lbs. . $[illegible]

202 Drill same as above, for Hand and Power combined with Tight and Loose Pulleys for Power. Weight, 340 lbs. . $65 00

202 Drill same as above, for Hand only. Weight 325 lbs. $60 00

For Foot Power Feed extra price. 5.00



Combination Automatic Self-Feed and Lever-Feed Drill [illegible] No. [illegible] [illegible] 9, 1901

No. 203

No. 203 Champion "Patented" Self-Feed and Lever-Feed Upright Post Drill has machine-cut Double Sliding Back Gears which are changed in a moment for light or heavy work. Fly Wheel spinning on Ball Bearings at the bottom end of shaft and all end friction taken from the Drill Spindle by the use of Ball Bearings.

The leverage of the Adjustable Lever can be changed to suit the work. Changing from Self-Feed to Lever-Feed requires but a small fraction [illegible] for Foot Power Feed see below. It has rack for raising and lowering the table and Wheel Hanger for drilling tires. Drills to center of 21-inch circle. Spindle is 1¼ inches in diameter and [illegible] up-and-down run of [illegible] inches. [illegible] take ¾-inch or ⅝-inch straight shank bits. If specially ordered will be bored to take [illegible] inch straight shank bits. Will drill holes up to [illegible] inches.

No. 203 Champion Post Drill Cone Countershaft for Hand and Power. Weight, 425 lbs., price $65.00

No. 203 Drill with Tight and Loose Pulleys for Hand and Power. Weight 340 lbs., price $54 00

No. 203 Drill, for Hand only. Weight [illegible] lbs., price $50 00

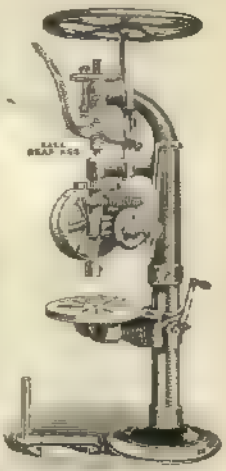
Foot Power Feed extra price $ 5 00

THE CHAMPION FOOT POWER FEED

Can be Used Only on the No. 200 Line of Champion "Patented" Combination Automatic Self-Feed and Lever-Feed Hand or Hand and Power Drills

The Champion Foot Power Feed is attached to the lever of the Drill, ready for work. The Foot Power Feed is a very convenient addition to this line of Drills, as it gives the operator many advantages in drilling holes, such as tires, and duplicate holes where great speed is wanted. It has the power to drill a fair-sized hole and also makes a very convenient feed for boring wood. The Foot Power Feed gives the operator the use of both hands, which is often necessary. The Foot Power Feed is not intended to remain on the Drill at all times. It is portable and can be removed in a minute's time and is only intended to be used on occasions as stated above, when a large number of small and medium holes are to be drilled. The bracket is screwed fast to the floor of the shop and the chain fastened to the lever with a fitting. The fitting can be taken off in an instant. As many blacksmith shops are not fitted up with floors, besides the bracket when not in use would be in the way if screwed to the floor we would advise that the bracket be screwed to a board 4 or 5 feet long and 10 inches to 12 inches wide. This board can be laid down in front of Drill for the operator to stand on the one end which makes it firm for Foot Power Feed Lever.

Foot Power Feed will fit any Drill in No. 200 line. Complete, Weight, 25 lbs., price. $5 00



No. 203½ Champion "Patented" Self-Feed and Lever-Feed Upright Drill fills a long-felt want of a strictly first-class, up-to-date Power Drill and Hand Drill and a [illegible] machine shops, blacksmiths and carriage shops. Its double-back cut gears are exactly the same as No. [illegible] on other side. The only difference in the two drills is that this drill is upright, requires no post. The workmanship represents the very best. Fly-wheel spins on ball bearings, end friction taken from drill spindle by use of the ball bearings, making it the most perfect running drill that can be manufactured. The Self-Feed [illegible] bores holes in the shortest possible time, and gives long life to the drill bit. The lever is adjustable, giving the operator the benefit of different leverages. Has rack for raising and lowering the table, wheel hanger for drilling tires. Spindle bored like Never-Slip and Kant-Slip Chuck to take in ¾-inch straight shank bit when specially ordered will be bored to take in ½-inch shank bits. Drills to center of 21-inch circle. Drills holes up to 1 [illegible] inches. Feed Screw has an up-and-down run of 5½ inches.

No. 203½ Drills to center of a 21-inch circle, for Hand only. Weight [illegible] lbs., price $[illegible] 00

No. 203½ Drills to center of 21-inch circle, with Tight and Loose Pulleys for Power and Hand combined. Weight 550 lbs., price $[illegible]

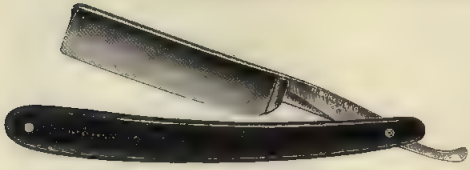
No. 203½ Drill, same as above, with Cone Pulleys for Power and Hand combined. Weight, 600 lbs., price. $85 00

For Foot Power Feed, extra 5 00

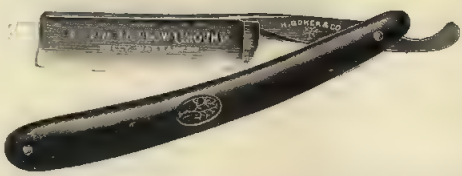
RAZORS.

TREE BRAND.

Specially Suited to Barbers' Use and Fine Professional Work.
Hand Forged from Special English Bar Razor Steel. Hardened and Tempered by Special Processes.



No. **1296**, $\frac{5}{8}$ inch Special Hollow Ground,
Per dozen, $21 00



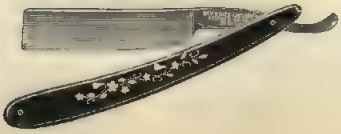
No. **346**, $\frac{5}{8}$ inch Extra Hollow Ground,
Per dozen. $24 00

No. **2801**, $\frac{5}{8}$ inch. Full Hamburg Ground,
Front Side Crocus Polished,
Etched in Gold. Polished
Celluloid Handle, Per dozen, $30 00

RED-INJUN.

Perfection in the art of Razor Grinding and Honing. Every Razor absolutely Perfect in its Shaving Qualities. Special Full Hamburg Ground.

No. **101**, $\frac{5}{8}$ inch, Per dozen, $36 00



GARLAND CUTLERY CO'S RAZORS.

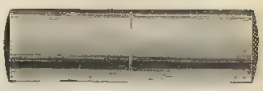
No. **48**, $\frac{5}{8}$ inch, Hollow Ground, Square Point, Full Polished,
File Cut Tang, Flat Bevel Edge, Rubber Handle
inlaid with Pearl, - - Per dozen, $15 00

POCKET MATCH SAFES—Continued

No. 380 German silver, floral designs in relief on both sides, size 1¾x2⅝ Per doz. $5 60

No. 386 Silver-plated gun-metal finish design in relief on front, embossed corners, size 1¾x2⅝ Per doz. $6 76

Miners'

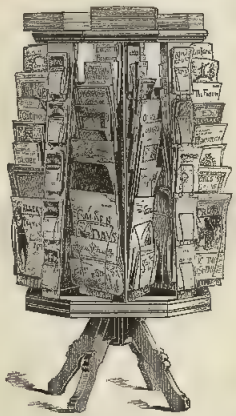


No. 389 Cylinder shape guaranteed air tight, nickel-plated, size 2⅝x¾ Per doz. $7 50

SECTIONAL REVOLVING DISPLAY RACK

For Magazines, Newspapers, Periodicals, etc.

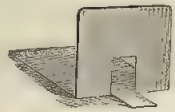
We do not carry in stock, but can furnish promptly shipping direct from factory



Folded

No. 47 Made of hardwood, natural finish, is very substantial and trimmed with plated spring wires. Is shipped either knocked down or set up. Each rack is provided with four 3-sided revolving sections and four stationary fronts for display. These sections turn independently of each other and the whole rack revolves on a center hinging any section or front into view with the slightest touch. When the sections are folded, each will turn without any confusion or interfering with the other. The capacity of the rack is very large, each having 116 of the wire pockets, holding and displaying the stock, which, spread upon two or three 10-foot tables. It holds a well equal in size to the largest or smallest magazine, newspaper novel, or similar book. Weight 5 feet, floor space, 34 inches, weight crated 100 lbs. Each $30 00

BOOK HOLDER



No. 10 Made of sheet iron and neatly japanned. Holding the header and book, as soon as opened, lies out on the natural position, a friend, a rubber passed one side upright, prevent holding it in place Per doz. $1 40

BOOK AND DICTIONARY HOLDERS

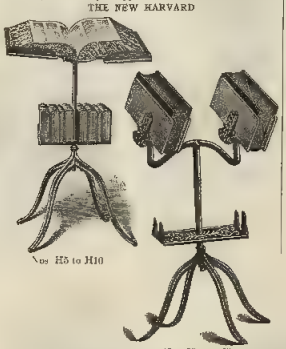
THE "FLANAGAN"

With Castors

The head adjusts to any desired angle or width of book by means of a single screw. The sides are made of highly polished and dark oak varnished, woods are operated by double-acting inclined springs and made of Bessemer steel and are absolutely unbreakable. The head is pivoted to turn to any position. There is not a single of these holders to get out of order

No.		Each
9C	Finished in gold bronze, with nickeled center rod, iron legs and castered	$3 60
9C	Finished in best japan, nickeled center rod, iron legs and castered	3 90
10C	Plated in antique copper	6 30

THE NEW HARVARD



Nos. H5 to H10

Nos. H15 to H100

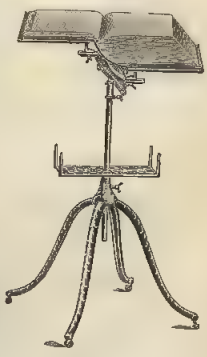
The entire base is made from cold rolled steel construction, it is not necessary to be a mechanical of setting it up is simple and free. The sheet base is a wide spread, four legs, the head is very strong. The head adjusts to any desired angle or width, by means of a single screw. The sides are made of polished oak and operated by double-acting inclined springs.

No.		Each
H5	Bronze finish, nickel trimmings	$4 30
H9	Japan " " "	4 35
H10	Antique copper finish	7 60
H15	Same as H5 double to hold 2 dictionaries	6 60
H19	" H9, " " 2 "	6 60
H100	" H10 " " 2 "	10 70

THE KALAMAZOO SPECIAL

No. X20 Possesses all the mechanical features of a higher priced ones of this make, all metal, bronze finish with black enamel top Each $5 60

COLUMBIA

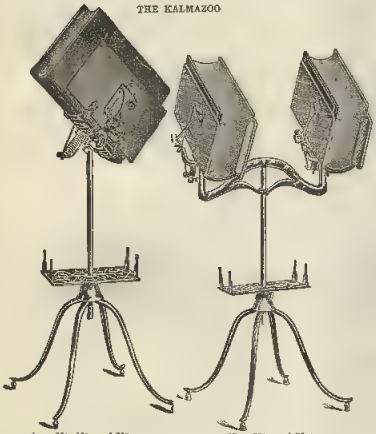


By opening at any point, the heavier side of the book, by its own weight, will adjust itself to a lower plane than the lighter, and the pages will be perfectly flat. There are no levers to press either to open or shut

No.		Each
50	Japanned	$6 80
51	Antique bronzed	10 70

BOOK AND DICTIONARY HOLDERS Continued

THE KALMAZOO



Nos. K1, K2, and K3 Nos. K11 and K12

It is entirely automatic in adjusting itself It will fit a book from 2 to 5 inches thick with equal ease. When closed, a constant pressure is exerted against the sides of the book. Does not injure back or covers of book in the slightest degree. Can be raised or lowered to any height. Wings are of polished oak

No.		Each
K1	Oxidized copper finish	$10 70
K2	Black enamel and nickel finish	8 00
K3	Gold bronze and nickel finish	6 70
K11	Oxidized copper finish	16 70
K12	Black enamel and nickel finish	13 40

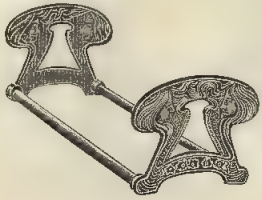
NOYES' NO. 19, PERFECTLY ADJUSTABLE

No 19 No D19

It looks when opened, and it closes and clasps the book firmly when laid aside. Can be adjusted to any book, is adjustable to any height or angle, and is pivoted to turn to any position. The base is bronzed, the standard nickel-plated, and the case of polished walnut, oak, cherry, or mahogany

No.		Each
19	Noyes' adjustable book holder with book rack oak	$3 40
119	Same as No 19, walnut	4 20
219	" No 19, mahogany	4 20
319	" No 19, cherry	4 20
D19	" No 19 double to hold 2 dictionaries	6 70

BOOK RACKS

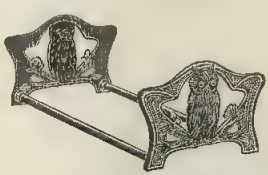


No.		Per doz.
80200	Book rack, metal, empire bronze finish, length closed 13 inches extends to 23½ inches	$24 00

BOOK RACKS—Continued

No. 80206 No. 80202

No.		Per doz.
80206	Golden oak finish, folding ends, extension base, size when open 8¾x27½ inches	$20 00
80202	Metal extension style, empire bronze finish, polished brass base length closed 8¾ inches	32 00



No. 80203

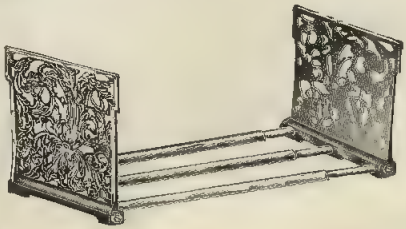
No.		Per doz.
80201	Book rack, metal, extension, bronze finish, polished brass rods, length closed 8 inches extends to 21½ inches	$27 00

No. 80203

No.		Per doz.
80203	Cast metal ends, antique brass finish, polished brass extension tubes, extends from 8½ to 13½ inches height of ends 4½ inches, width 6½ inches	36 00

No 80204 No. 80205

No.		Per doz.
80204	Brass antique finish, extends from 13 to 23 inches	$48 00
80205	Brass, antique finish, extends from 13 to 23 inches	72 00



No.		Per doz.
80207	Extension, polished brass, 3 rods	$54 00

AXES

AXE HEADS WITHOUT HANDLES

"Yankee" Pattern, Single Bitted

"Michigan" Pattern, Double Bitted

"Michigan" Pattern, Single Bitted

"BOUGHTON" BRAND
Finest Quality Steel and Temper, Hand Forged, Gun Metal Finish

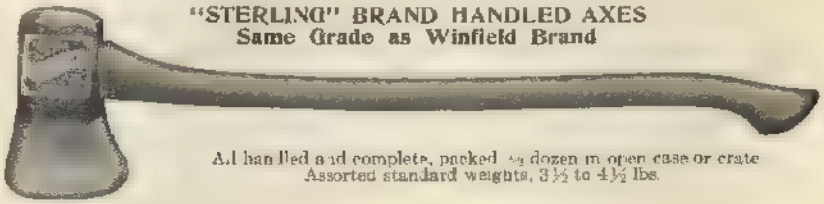
Single bitted, Yankee or Michigan patterns assorted weights, 3½ to 4½ lbs.. $12.00 Dozen
Double " " " " " " " 4 " 5 " . . . . . 17.00 "

"WINFIELD" BRAND
Fine Quality Steel and Temper, Hand Forged, Polished and Bronzed

Single bitted, Yankee or Michigan patterns assorted weights, 3½ to 4½ lbs $10.00 Dozen
Double " " " " " " " 4 " 5 " . 15.00 "

Handles for above Axes listed elsewhere in catalog.

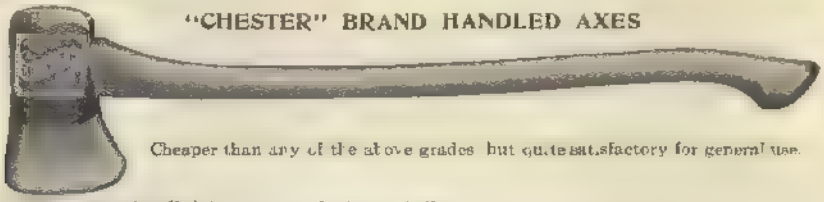
"STERLING" BRAND HANDLED AXES
Same Grade as Winfield Brand



All handled and complete, packed ½ dozen in open case or crate
Assorted standard weights, 3½ to 4½ lbs.

"Sterling" Michigan pattern handled Axes, single bitted . . . . . $13.50 Dozen

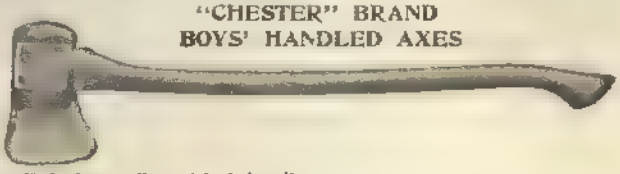
"CHESTER" BRAND HANDLED AXES



Cheaper than any of the above grades but quite satisfactory for general use.

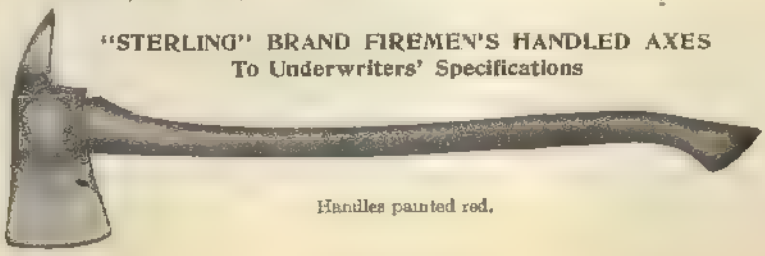
"Chester" brand Michigan pattern handled Axes, assorted 3½ to 4½ lbs . . . . . $11.00 Dozen

"CHESTER" BRAND BOYS' HANDLED AXES



"Chester" brand Boys' Axes handled, about 3 lbs., 28 inch handles . . . . . $6.50 Dozen

"STERLING" BRAND FIREMEN'S HANDLED AXES
To Underwriters' Specifications



Handles painted red.

"Sterling" Firemen's Axes, 5 inch cut . . . . . $30.00 Dozen

HATCHETS AND ADZES

"Van Kleeck" Brand, Fine Quality Steel and Temper, Bronze Finish
"Chester" Brand, Good Quality Steel and Temper, Gun Metal Finish

Both grades take same lists but different discounts.

Claw

Shingling

Lathing

Half Hatchet

No	Width of Cut, Inches	Per Dozen
1	3½	$ 9.00
2	3⅞	9 50
3	4⅝	10 00

No.	Width of Cut Inches	Per Dozen
1	3½	$8.00
2	3⅞	8.50
3	4¾	9 00

No.	Width of Cut, In	Per Dozen
1	2½	$8 00
2	2¾	8 50
3	3	9 00

No	Width of Cut Inches	Per Dozen
[illegible]	[illegible]	$8 [illegible]
[illegible]	[illegible]	9 [illegible]
[illegible]	[illegible]	9 [illegible]

Nos. 2 and 3 are the popular sizes.

BROAD OR BENCH HATCHETS
Western Pattern

No	Bit Inches	Price per Dozen
3	5	$13.00
	5½	14 50
5	6	16 50
6	7 2	18 00

No. 4 is the railroad and popular size.

Hunters'

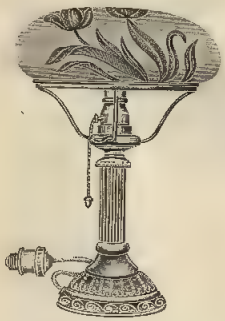
HUNTERS' HATCHETS OR AXES

No.	Weight Each, Lbs.	Length Handle, Inches	Price per Dozen
0	1	13	$ 9.00
1	1½	14	10.00
2	1¾	16	11.00

VAN KLEECK BRAND RAILROAD ADZES
Full Head

Width of cut, 5 to 5½ inches, assorted . . Price per dozen, $26.00

ELECTROLIERS



No. 80464

No. 80463

No. Per doz.
80464 Brass, antique finish, glass shade with floral design in natural colors on light background, one burner fitted with pull chain, 6 feet silk cord and electric plug, height 16 inches $120 00
80463 Metal base and standard dark verde finish, shade is combination of green art glass and metal in dark verde green fringe, chain pull and 6 feet silk cord with socket 156 00

No. 80465

No. 80466

No. Per doz.
80465 Brass Roman gold finish handsome glass shade ornamented with beautiful floral design in natural colors, green background, 2 burners, fitted with pull chain 6 feet silk cord and electric plug, height 16 inches $162 00
80466 Brass base and beautiful openwork brass shade over glass in beautiful colors, 2 burners fitted with pull chain 6 feet silk cord and electric plug height 16 inches 288 00

No. 80468

No. 80462

No. Per doz.
80468 Old brass standard engraved, beautiful shade, delicate green lace gem, handsome floral design in most delicate tints, one light fitted with electric plug and 8 feet best silk cord, height 21 inches, diameter of base 12 inches $288 00
80461 Full French bronze, "The Reaper" full height 24 inches, height of figure exclusive of base 11½ inches, 2 burners, fitted with 6 feet of silk cord and electric plug 240 00
80462 Full French bronze, "The Sower" full height 25 inches, height of figure exclusive of base 15½ inches, 2 burners, fitted with six feet silk cord and electric plugs ... 288 00

No. 80460

No. 70528

No. Per doz.
80460 Brass, brass shade, Roman gold finish, fancy glass ornaments on side of shade, large glass ornament on top, fancy bead fringe, fitted with chain pull, electric socket for lamp, wired, 6 feet of silk cord and electric plug, height 18 inches $300 00
70528 Romanesque and Colonial brass, 8-inch Murano shade with ivory top, green and opal band, and ruby border, chain pull, electric socket and one 10 c. p. round bulb lamp, wired, six feet silk cord and electric plug 288 00

No. 70530

No. Per doz.
70530 Colonial brass, 12-inch art glass shade, green and opal glass, with 5-inch green bead fringe, chain pull, electric sockets for two 16 c. p. lamps wired, 6 feet silk cord and electric plug, height to shade 13 inches, extreme height 19 inches $288 00
80467 Old brass standard handsomely engraved, opalescent shade, most delicate green background, hand-painted design of roses and lace, also delicate lace decoration, 2 lights, height 23½ inches, diameter of shade at top 9½ inches, at bottom 13½ inches, fitted with electric plug and 8 feet best silk cord 528 00

No. 80467

Style "J" Advertisement Printed Free of Charge.

PRINTED IN THREE COLORS

9 inches

3¾ Inches

3 Inches
ADD SPACE
We print our Customer's Card

Bronson Bros.
HARDWARE COMPANY
SPRINGFIELD - IOWA.

ROLL PAPER PRINTED FREE OF CHARGE.

STYLE "J" ADVERTISEMENT

Like on this sheet space occupied by cut 9x5¼ inches. PRINTED FREE OF CHARGE, with Orders for 6 Rolls or more, on Roll Paper as described on Page 319. (DON'T PRINT LESS THAN 6 ROLLS.)

This Advertisement has 1¼ inch Strips (Green and Red, alternating 11½ inches apart), adding greatly to the life of the Advertisement and making it very attractive.

In sending in Orders for Roll Paper to be printed, always state Style of Advertisement wanted. Customer's Card not to exceed space 3 inches in Height.

ANY OTHER STYLE OF ADVERTISEMENT YOU MAY DESIRE can be furnished as per the Following Prices:

PRINTING ROLL PAPER.

Minimum	List Price	Minimum	List Price
6 Rolls	per Job, $5.60	15 to 49 Rolls, per Roll	$0.75
7 to 10 Rolls	" 6.75	50 to 124 " "	[illegible]
11 to 14 "	" 8.45	125 to 249 "	.45
		250 Rolls or over	.40

The above prices include cost of printing firm name and Business Card.

IN ORDERING ROLL PAPER STATE,

Number of Paper Wanted. Size of Roll Wanted. Style of Advertisement Wanted.

Style "K" Advertisement Printed Free of Charge.

Bronson Bros.

SPRINGFIELD, - IOWA.

ROLL PAPER PRINTED FREE OF CHARGE.

STYLE "K" ADVERTISEMENT

Like on this sheet, space occupied by cut 8¾x2¼ inches PRINTED FREE OF CHARGE, with Orders for 6 Rolls or more, on Roll Paper as described on Page 319 (DON'T PRINT LESS THAN 6 ROLLS.)

This Advertisement has 1¼ inch Stripes, Green and Red alternating (1½ inches apart), adding greatly to the life of the Advertisement, and making it very attractive

In sending in Orders for Roll Paper to be printed, always state Style of Advertisement wanted. Customer's Card not to exceed space 3 inches in Height

ANY OTHER STYLE OF ADVERTISEMENT YOU MAY DESIRE can be furnished as per the Following Prices:

PRINTING ROLL PAPER.

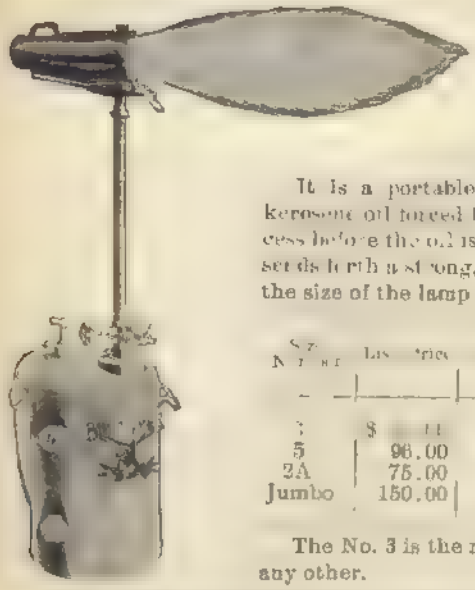
Minimum	List Price
6 Rolls	per Job, $5.60
7 to 10 Rolls	" 6.75
11 to 14 "	" 8.45

Minimum	List Price
15 to 49 Rolls, per Roll	$0.55
50 to 124 " "	.50
125 to 249 " "	.45
250 Rolls or over "	.40

The above prices include cost of printing firm name and Business Card.

IN ORDERING ROLL PAPER STATE,

Number of Paper Wanted, Size of Roll Wanted, Style of Advertisement Wanted.



THE "BUCKEYE" PORTABLE LIGHT

Adopted by Panama Commission

For outside work. Used by railroads, contractors, miners, dredgers, etc. Unaffected by wind or rain. Casts no strong shadows.

It is a portable light torch, having the power within itself generated from kerosene oil forced by compressed air to a burner which is heated by a simple process before the oil is turned on. When turned on it at once becomes vaporized and sets forth a strong, white, smokeless flame 12 to 40 inches long, depending upon the size of the lamp.

Size No.	List Price	Candle Power	Size of Tank	Oil Consumed per hour	Weight lbs.	Net Price less discounts
3	$ [illegible]	2000 to 2500	18 x 27 in.	1¼ gallons	200 lbs	$16.50
5	96.00	4000	18 x 27 "	1¾ "	200 "	24.00
2A	75.00	2000	16 x 22 "	1¼ "	160 "	16.50
Jumbo	150.00	5000	24 x 32 "	2 "	320 "	36.00

The No. 3 is the most general size for all purposes. More of this size sold than any other.

Unless advised to the contrary, we always send an extra burner with each light and charge for same.

Portable Light

THE "KITSON" 2000 CANDLE POWER PORTABLE LIGHT

Low Cost of Maintenance. Unaffected by Weather. Self-Contained. Thousands in Use

Adapted for use in all cases where light of high candle power is desired by contractors, dredging companies, railroads, or in any place where temporary or movable light is required. Weight, 75 pounds filled; one man can carry it.

Attention is called to the low cost of production and high efficiency of the light. One gallon of kerosene oil will give a light of 2000 C. P. for 12 hours at a cost of about 10 cents.

In the older style open flame lights of similar candle power about 15 gallons would be consumed in the same time. The cost of repairs is also less for the Kitson light.

Portable Light (outfit complete). Price..... $85.00
" " (without pump). Price..... 75.00

Where two or more lights are used on the same operation only one set of pumps is required.

Hanging Light (outfit complete). Price.....$68.00

Can be started in two minutes, pumped once in a night, then only for five minutes. Has seamless one-piece tank.

Hanging Light

RAILWAY STOVES

For Stations, Roundhouses, Way-Cars, Factories, Etc.

"Volcano" Station Stove

"Volcano" Way-Car or Caboose Stove

Size	Largest Inside Diameter of Fire-pot, Inches	Height, Inches	Diam. Stove Pipe, Inches	Weight, Lbs.	Price
No. 0	14	36	6	275	$16.50
No. 1	17	40½	6	345	23.25
No. 2	18	42	6	450	29.25
No. 3	21	46	6	665	37.50
Way-Car	14	39	6	285	19.50

Station Stoves Nos. 10, 20 and 30

Lewis Way-Car or Caboose Stove

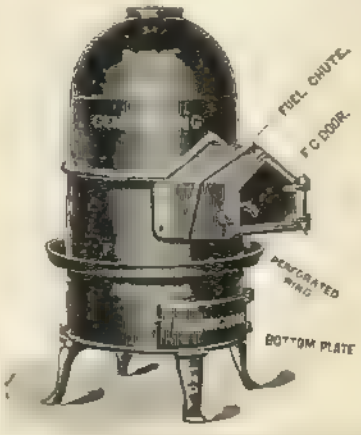
Size	Largest Inside Diameter of Fire-pot, Inches	Height, Inches	Diam. Stove Pipe, Inches	Weight, Lbs.	Price
No. 10	17½	44	6	570	$34.50
No. 20	15	40	6	400	26.25
No. 30	11½	34	6	235	18.75
Lewis Way-Car Stove	14	39	6	350	21.00

Giant Stove No. 5. Round house pattern fire pot 26 inches inside diameter, height 60 inches, 10 inch stove pipe, weight 1,100 lbs. Price $63.00

THE "PERFECT" SAND DRYER

These Driers are built in the fashion of an hour glass, the wet sand being shoveled against the stove, and as it dries it runs out through apertures in the perforated ring which surrounds the bottom of the hopper. The amount of sand that will pass through this machine in a given time is variable and depends largely upon the conditions under which it is used; that is to say, how wet the sand is when it is put in the hopper and also the intensity of the fire maintained in the stove. The furnace is arranged to use any kind of solid fuel such as hard or soft coal or wood. These driers are for use with clear sand only, as earth or clay will merely bake and will not discharge itself from the machine. These driers are claimed to be the best ever put upon the market for preparing sand for use on locomotives and street cars.

Number	Capacity per Day, Tons	Weight, Lbs.	Price Each
1	10	11[illegible]	$[illegible] 75
2	5	[illegible]	50 [illegible]5



Cut without Hopper, Showing Names of Parts

"WELLINGTON" SAND DRYER

Used by Brick Yards, Foundries, Railroads, Glass Works, Plaster Works, Etc.

The screen is open on the top where the green sand is put in. A small fire keeps the dome hot and dries the sand which falls through the opening at the bottom of the screen.

This is a most successful device and the cheapest and easiest way to prepare molding sand

There is a connection from the perforated metal screen to the dome, holding the screen rigidly to place.

The stove is heavy and substantial and economical in the use of fuel

Section of smoke stack shown in cut is extra and not furnished unless ordered.

Diameter over all 37 inches

Height, 57 inches.

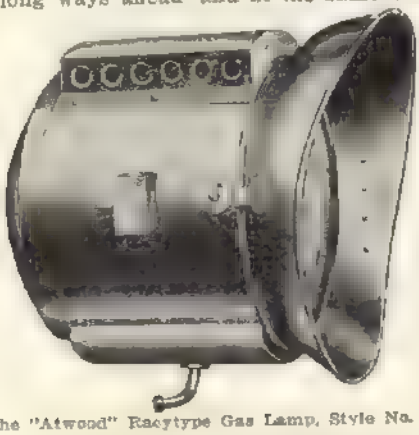
Capacity, 10 to 20 cubic yards per day.

Weight, 1100 lbs. . . . . Price, $85 00

1908 Atwood Additions

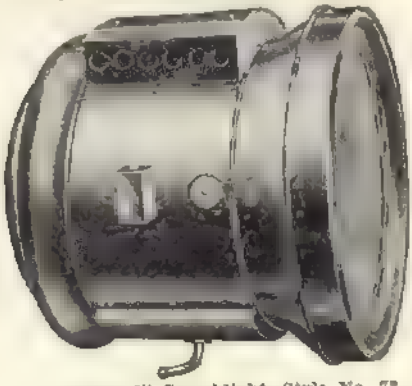
In addition to its well known line of automobile lamps, the Atwood Manufacturing Co., Amesbury, Mass., has placed on the market for 1908 a number of new styles of lamps; also an improved form of generator.

The Atwood gas lamp is made of full brass, highly finished, and is supplied with the best quality Mangin Lens mirrors, warranted to project a powerful light a long ways ahead and at the same time



The "Atwood" Racytype Gas Lamp, Style No. 77

to light the roadway immediately in front of the car. The whole body of the lamp is made in one piece. Three sizes are offered, listing at $14.00, $16.00 and $18.00 each. Style No. 77 is made in 6 inch, 7 inch and 8 inch sizes, and lists at $13.50, $15.00 and $17.00. It is an attractive and racy looking gas lamp, and is fitted with the finest quality Mangin Lens mirror. The body is all brass.



The "Atwood" Searchlight, Style No. 78.

The Atwood lamp, Style No. 78, is of the searchlight type, and is suitable for high grade touring cars. It is made of heavy gage brass, and is fitted with Mangin lens mirror. Two sizes are made: Style 78, with 8 inch lens, 10⅛ inches diameter of flange, 11 inches high, and 10¼ inches long, listing at $18.00, and the same style with a 9 inch lens, 11⅝ inches diameter of flange, 11½ inches length of body and 12⅝ inches height of body, listing at $22.00.

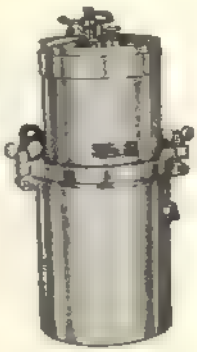
The Atwood square oil side lamp, No. 73, is made of full brass, full silver lined. The manufacturers furnish this lamp with green and red enamel border, ⅝-inch wide, just inside the bevel on the glass, and

The "Atwood" Square Oil Side Lamp, Style No. 73.

The "Atwood" Oil Side Lamp, with Oval Bent Glass, Style No. 95

extending all around the front of the glass, frequently seen on high grade French lamps. Red is furnished on one lamp and green on the other, which makes it very attractive without interfering with the light. This lamp is made in two styles, listing as follows: No. 73, 4¾x4¾ size of body, and 13 inches high, $15.00 per pair, and No. 74, 5¼x5¼ size of body and 14¼ inches high, price $18.00. Style No.

The "Atwood" Oil Lamp for small touring cars or runabouts, Style No. 76



The "Atwood" Generator, No. 44.

73, special with colored border lists at $17.50, and Style No. 74, special, with colored borders price $20.00. The Atwood Style No. 95, oil side lamp is similar in construction to the No. 73 lamp, except it has bent oval glass instead of square. The lamp is made in one piece of heavy gage brass, and is constructed on the tubular or cold blast principle. It

can be fitted for electricity if desired.

Two sizes are made: Style No. 95, 4¾x4¾ inches size of body, and 13 inches high, listing at $17.00 per pair, and Style No. 96, 5¼x5¼ inches size of body by 14¼ inches high, listing at $20.00.

The Atwood side oil lamp for small touring cars or runabouts is constructed on the tubular or cold blast principle, and is made of full brass silver lined. One size only is offered. It is 12 inches high (without handle), 6¾ inches long, and has a 6⅞-inch flange. It lists at $10.50.

Style No. 90 is fitted to burn electricity. It is made in full brass, silver lined and highly polished. The size of the glass is 4¾x4¾ inches. This style lists at $20.00 per pair.

The Atwood No. 44 generator is made of heavy seamless drawn brass. It is fitted with a carbide basket of 4 pounds capacity, and will supply from 1½ to 2 feet of gas per hour according to size of gas tip. The generator is divided into three principal parts: Top part, lower part and carbide basket. The top part constitutes the water tank which holds the water that drips upon the carbide. The lower part is a receptacle for holding the residue or ashes, and No. 44 is surrounded by a water jacket. The carbide is likewise contained in the lower part of the generator. One of the features of this generator is an improved quick cam adjustment, which has a nut on same to take up any wear. This generator lists at $15.00 with water jacket, and at $13.00 without water jacket.

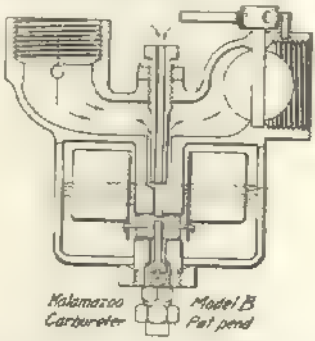
Kalamazoo Carburetor Model B

Kalamazoo Carburetor Co., 1301 Grand avenue, Kalamazoo, Mich., is now ready with a new model of the Kalamazoo carburetor which is cataloged as Model B

This carburetor is supplied with either vertical or horizontal outlet. It has a butterfly valve at each end of the main air passage, one serving to throttle the engine and the other to reduce the proportion of air and produce a richer mixture for starting with a cold engine. The float in the new model is concentric with the gasoline jet. A brass tube, inserted in the float is guided on the central stem and the gasoline valve is operated by a pin thru the tube and valve stem, the central post being slotted to allow vertical movement of the pin.

A novel feature of this model is the manner in which the gasoline is drawn from the float chamber into the main air passage. This is done by applying the principle of the airlift, as successfully used by hydraulicians in pumping deep wells. The gasoline regulating screw is a tube, inserted in an enclosing well, as shown by the sectional view, the well communicating with the main air passage. Upon the creation of a partial vacuum in the main air passage by the action of the motor, a downward air current is created thru the hollow screw and an upward current is created in the gasoline stand pipe. This produces a rich vapor which is drawn upward, outside the adjusting screw, into the main air passage. The proper mixture is obtained by regulating the depth of the screw in the enclosing well, one position of the screw giving the proper mixture for all throttle positions.

For this arrangement several advantages are claimed. The float is adjusted so that the point of the adjusting screw barely touches the gasoline or is slightly immersed in it, with no danger of leakage. This makes the carburetor very sensitive at low speeds and when cranking. It is



Sectional view Kalamazoo Carburetor, Model B.

equivalent to maintaining the gasoline level precisely at the top of the jet in the ordinary form of carburetor. Another advantage is that the gasoline may rise considerably above its ordinary level without leaking or accumulating in the air passage, thus putting increasing pressure upon the float valve. This also prevents dripping of gasoline on stopping the motor and when driving rough roads.

This model B is very compact and can be readily attached to almost any motor without change. Several throttle positions and movements are offered to adapt it to various steering post levers. This firm will also continue the manufacture of their multiple-jet carburetor, which will be furnished in the 1908 model both with horizontal and vertical outlet.

"Crown" Soap and Metal Polish

The Crown Soap Co., Syracuse, N. Y., makes a specialty of soft oil soap made after a secret formula. A special feature of "Crown" soap is its quality of preserving the finish of a car body and the maker states that it can be used on the most highly polished surfaces without fear of results. It is a vegetable soap containing no free alkali.

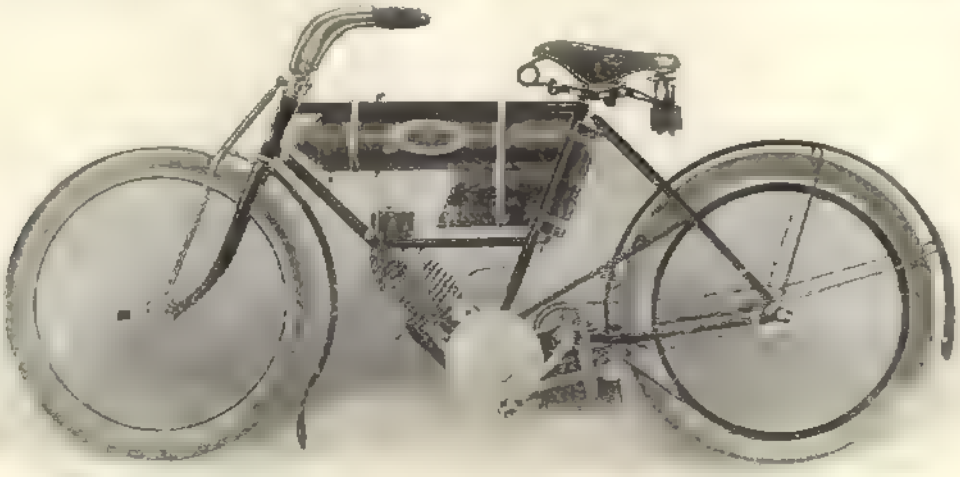
This company also makes "Crown" metal polish, which is for use on the finest metals. It does not settle hard in the bottom of the car after long standing.

The "Auto-Bi" for 1908

The "Auto-Bi" is now made in a new factory built especially for the purpose and devoted entirely to the production of these well known motorcycles. The Thomas Auto-Bi Company which formerly made the machine has been succeeded by The Auto-Bi Co., and the new factory is located at 1573-1575 Niagara street, Buffalo, N Y.

Two models are offered for 1908, both the same mechanically but having different equipments to meet the requirements of two different classes of customers. Some customers want the very best tires, saddles, etc., and for this class the Auto-Bi Co., offer Model 47, which has 2½-inch G & J clincher tires, hollow, nickeled steel rims, Persons double coil spring motor seat, or Brooks motor saddle, extra high handle bars, corrugated extra wide mud guards with heavy braces, spring cushion front fork, chain-belt drive, Corbin front hub and coaster brake and either a Breeze carburetor or a new carburetor made by the Auto Bi Company. The 1908 improvements include a new spring on the idler which makes the tension on the belt automatically adjustable to varying conditions. A butterfly nut is provided for compressing this spring and thus increasing the tension and the rod carrying the idler arm is provided with three holes at its lower end to allow further adjustment. The finished parts of the motor are nickeled, which not only adds to its appearance but gives a smooth surface easily kept clean and not so likely to gather and retain dirt. A foot-operated muffler cut-out is fitted, and a priming cock is provided to give easy starting with a cold motor. The timer is enclosed on the new model. The cushion spring fork has been reinforced by the addition of a truss extending outward from the fork crown. The price of this model is $210.

Model 46 has a cheaper equipment, including 2-inch single tube tires, and wood rims. It lists at $185



The 1908 "Auto Bi" Model 47. Price, $210.

The F. N. Fore Car

The Ovington Motor Co., 2208 Broadway, New York City, N. Y., agent for the four-cylinder F. N. motorcycle of Holland, are now prepared to fit fore cars to these machines. The fore car is a device by means of which the motorcycle may be transferred into a three-wheel two-passenger vehicle, one passenger being placed in front of the other. It is different from a side car in that the extra passenger attachment is placed in front of the driver who sits on the motorcycle seat instead of beside him as in the case of the side car The fore car is not new in this country, but the type of fore car illustrated has several distinctive features. The bracing is different than that of any American machine, the frame work running from the extreme rear to the front. In the matter of brakes this fore car is not dependent on a small motorcyle brake in the rear hub of the motorcycle itself, but is fitted with a powerful expanding drum brake in place of the hub brake, and in addition with two band brakes, one being on each wheel of the fore car. In other words, every wheel on the vehicle is fitted with a powerful brake, any one of which would be sufficient to stop it under all ordinary circumstances. The rear brake is applied as is customary by a back pedaling action, and the band brakes on the fore car by means of a special pedal placed on the fore carriage frame work in proximity to the feet of the rider. The machine is also fitted with liberal sized automobile type mud guards instead of bicycle guards, as usually applied. The fore car is readily changed back into a motorcycle by detaching carriage seat and frame, and replacing the front wheel.

A side car is also made by the F. N. Company which overcomes the usual difficulty experienced in steering this type of vehicle owing to the third wheel rotating in one place only, as the F. N. third wheel is of the castor type, and supported on ball bearings, being free to swing into any plane in a vertical axis.

THE NEW SINGLE CYLINDER F. N. MOTOR CYCLE.

A new single cylinder machine has been placed on the market this year. One of its novel features is the transmission, which is a combination of a gear and belt drive. It is usually necessary to make the driving pulley on the engine as small as possible, and the pulley on the rear wheel as large as the construction will allow in order to obtain the required gear reduction. The small engine pulley means that the driving belt has very little surface or grip, and the large pulley is liable to strike road obstructions. The F. N. Company has mastered this difficulty by employing a geared pulley. This is an enlarged type of the ordinary pulley, but in the interior, gear teeth are cut, and a pinion on the engine meshes with this gear. As the gear reduction is made in the geared pulley itself, this construction allows the use of a very large engine pulley and a comparatively small rear pulley, and it is claimed belt slipping is entirely overcome. This device also forms a ready means of tightening the belt. This little machine weighs complete only 100 pounds, which, when it is considered that this includes a Simms-Bosch high tension magneto and a spring fork, is remarkably light; in fact, the machine is one of the lightest in the country.

THE F. N. BIG FOUR MOTOR CYCLE

The four-cylinder F. N. motorcycle remains practically unchanged. However, a heavier type of Simms-Bosch magneto is employed, a different design of muffler is used, and the rear mud guard has been made more readily removable.

The price of the F. N. single cylinder motorcycle has just been reduced from $250 to $215, and this includes a Simms-Bosch magneto, which sells alone for $42.50, the spring forks, combined gear and belt drive, and other valuable 1908 features. The Ovington Motor Company also now handle the Nala Hub, a two-speed gear and free engine device, the price of which is $68 50. It is especially adaptable to use with twin cylinders or large single cylinder motors, and for tricar use. Another new feature of the F. N. line is a 6 H. P., 4-cylinder motorcycle for racing purposes. The engine has mechanical valves, and is fitted on a light weight racing frame.

Imperial Motorcycle Mfg. Co., of Brazil, Ind., has under way a two-cylinder motorcycle which will be equipt with magneto and two-speed gear and will employ shaft drive.

Sager Spring Fork for Indian Motorcycles

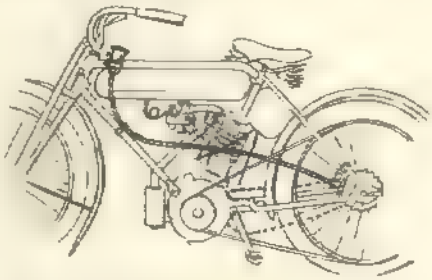
J. Harry Sager, Rochester, N. Y., has put out for 1908 a new type of the Sager spring fork, especially designed for use on Indian motorcycles which was given marked attention at the New York and Chicago shows. The difference between this model and the standard Sager fork is

Sager Spring Fork for Indian Motorcycles.

chiefly in the new attaching device made necessary by the fact that the Indian fork is swiveled at a point near the crown. As the drawing herewith tells the whole story, extended description is not necessary. A number of motorcycle manufacturers are using Sager spring forks as regular equipment on their 1908 machines.

The "Loring" Motorcycle Speed Gage

The Loring Speed Gage, marketed by the Loring Auto Appliance Co., 49 W. 63d street, corner Broadway, New York City, and described in our November, 1907, issue, page 205, and in the December, 1907, issue, page 164, is now made in a smaller size for motorcycle use.



The "Loring" Motorcycle Speed Gage as applied to a Motorcycle.

The accompanying cut suggests the manner in which the gage is applied to a motorcycle. The drive is by bevel gears. The internal construction of the motorcycle gage is exactly the same as the regular automobile size, except that its parts are proportionately smaller.

MOTOR CYCLE DEPARTMENT

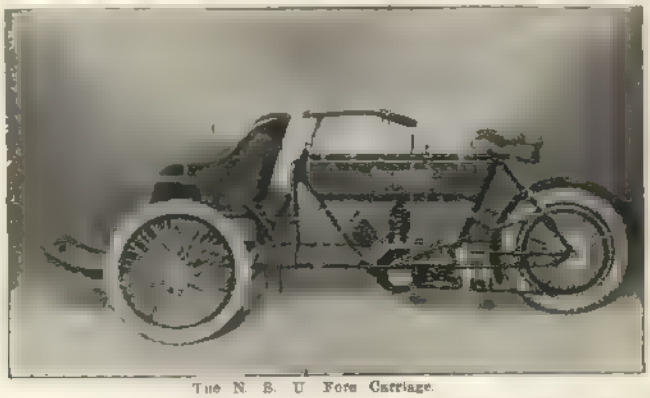
Motorcycles Prominent at Sportsman's Show

Contrary to the practice of former years the motorcycle was this year given more attention and better space allotments at the various shows, a fact particularly noticeable at the recent Sportsman's Show held February 20th to March 7th at the Madison Square Garden, New York.

The motorcycles represented were as follows: The F. N., marketed by the Ovington Motor Co.; the Indian motorcycle manufactured by the Hendee Mfg Co., and exhibited by the New York agents, F. A. Baker & Co.; the N. S. U., built by the N. S. U. Cycle & Motor Co., which has an American branch at 206 W 76th St., New York City; the Thor, exhibited by the R. E. Sporting Goods Co., and make by Aurora Automatic Machinery Co., of Aurora, Ill., and the Minerva, a foreign machine, marketed by Geo. V. Lyons Motor Co.

Features of the N. S. U. Motorcycles

Herewith are illustrated a fore carriage on an N. S. U. motorcycle, made by the N. S. U. Cycle and Motor Co., London, Eng., which recently established an American branch at 206 West 76th St., New York City, where a full line of all models, attachments, etc., are kept in stock.



The N. S. U. Fore Carriage.

The N. S. U. fore carriage is suitable for N. S. U. single or twin cylinder motorcycles, and is fitted with either a coach-built body or cane seat. The carriage is supported on S-springs, and fitted with large mud-guards with strong stays. Twenty-four inch wheels are furnished. The carriage is furnished with two lamp brackets clips, bolts and nuts for attaching. The N. S. U. side car is similar to the fore carriage with the exception of the method of mounting.

The concern also makes a two-speed gear which is of the sun and planet type, in which several small spur wheels work they slide into slots in a band that is fast between and in mesh with a large internally-toothed ring and a small externally-toothed wheel, so that the holding or releasing of the centre wheel, the internally toothed ring or the ring holding the intermediate wheels alternately gives the necessary changes in gear. The low gear is obtained by holding the central wheel fast, and driving the internally-toothed ring first to the motor axle, thus driving the intermediate wheels, fixed to the belt pulley, round the central wheel at a speed 35 per cent. less than the speed of the motor.

The change of speed is effected by means of a rod with a handle which is clamped to the top tube of the motorcycle. This handle when turned to the left brings the high or normal gear into action and allows a direct drive after the maner of an ordinary pulley. When turned from the high gear position to the extreme right, the low gear is obtained. If the handle is turned midway between the two positions it will withdraw the clutch, and allow the engine to run free; the latter position being between that of the high and the low gear. In heavy traffic, when driving on the low gear, half a turn of the handle to the left will be sufficient to obtain a free engine. The gear can easily be fitted to any N. S. U. engine by detaching the ordinary pulley and fitting the variable gear in its place, the rod for working the top tube by means of a clip.

Two models of the N. S. U. were illus-

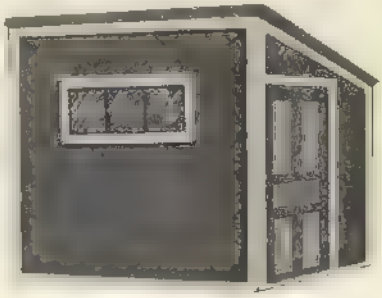
trated in our January number, page 229, and we are showing herewith the 1¾ H. P light weight model, as well as the fore carriage on a 2-cylinder machine. The 1¾ H. P. model weighs but 85 lbs., including the magneto, but is very strongly made. It is capable of a speed of 30 miles per hour. A Simms Bosch high-tension magneto is used for furnishing the ignition current. The cylinder bore is 62 mm. and the stroke 70 mm. A round belt transmits the power to the rear wheel.

The N. S. U. 1¾ H. P. Single Cylinder Motor Cycle.

The frame is 23 in. high, the wheels are 26 in. in diameter and are shod with 1¾-inch Peter Union or Continental tires. Besides the coaster brake on the rear wheel a hand-operated hand brade is also fitted. Wide mudguards are used. The gasoline capacity is 1 gallon. The equipment includes a metal tool case and set of tools

The "Chicago" Portable Motorcycle House

The Chicago Portable House Co., 4724-4734 Shields Ave., Chicago, Ill., builders of portable garages and cottages, realizing the demand for a portable motorcycle house, have designed the building illustrated herewith.

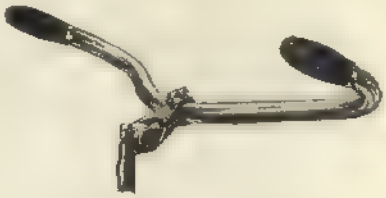


The "Chicago" Portable Motorcycle House.

This structure is of ample size, so that besides storing, the owner will find plenty of room for making repairs, etc. The sill and floor joists are of hemlock; the uprights, plates and rafters of pine. The siding, flooring and roof sheathing are of matched pine. The roof is covered with the best quality Flint-Coated Composition roofing. One three-light window is provided on one side. A regular panel door with rim lock is fitted. The building is primed with one coat of light paint on the outside.

The "Echo" Extension Handle-Bar

Echo Co., Young Street, Tonawanda, N. Y., are on the market with an extension for handle bars for pedal cycles and motor cycles. This extension will fit any ordi



The "Echo" Extension Handle Bar

nary standard handle-bar and, when used, allows any position of the bar from a low drop to a high upright position. It is claimed to be strong, neat, simple and convenient. The list price is $1.30; or it may be had with bar complete for $2.50. Discounts are given the trade.

"Persons" Motorcycle Tool Kit and V-Belt Fastener

The Persons Manufacturing Co., Worcester, Mass., manufacturer of the well-known Persons motor saddle, has recently added two new products to its line, namely, a motorcycle tool kit and a V-belt fastener, both of which are here illustrated.

"Persons" Motorcycle Tool Kit.

The tool kit is made of full-weight oak sole leather, the front, bottom, back, top and flap all being one piece. The ends are double hand stitched in with waxed flax, to which a second piece is riveted, as shown in the cut. The kit is 9x3⅜x3 in. in dimensions. The sheet metal supports at each end of the kit have recessed interiors into which set square nuts with

1908 Franklin Models

The line of Franklin models for 1908, made by the H. H. Franklin Mfg. Co., Syracuse, N. Y., has been increased to ten by the addition of the G brougham and the G landaulet, two of the lightest closed body machines on the market. Both are built on the chassis of the G model, the smallest of the Franklin types. The wheel base of the brougham is 76 inches and that of the landaulet is 92, making them extremely handy vehicles for use in city traffic. The brougham, which weighs only 1700 pounds, is controlled from inside the body, and is an ideal machine for the use of physicians and ladies. The landaulet, which follows closely the lines of the Franklin model D of the same type, and which weighs 1850 pounds, is claimed to be the lightest machine of its kind on the market. Both of these motor cars have 16 horse-power engines, and are similar to the Franklin G runabout and touring car in all specifications. The brougham sells for $2,250 and the landaulet for $2,600. The Franklin Company, which makes exclusively air-cooled automobiles, now makes two landaulets, a limousine, a brougham and a taximeter cab. These models all retain the characteristic Franklin features of light weight, air-cooling and large horse-power for the weight.

Fig. 1. 1908 Franklin Model H. This car has a 6-cylinder 42 H. P., air cooled motor, 4¼ x 4 inches. Double ignition from Bosch high tension magneto and dry cells. Multiple disc clutch; selective sliding three speed change gear, shaft drive floating rear axle. Tires 36 x 4 front and 36 x 4½ rear ash frame, 119 inches wheel base and full elliptic springs; weight complete 2,850 lbs., seating capacity four; gasoline capacity 14 gallons. price as a touring car or runabout $4,000.00, and as a limousine $5,200.00.

The most important change for 1908 is an increase in horse-power on all the models. The engine which formerly developed 12 H. P., through refinement and change has been increased to 16 H. P. Perfection in construction and a slight increase in the size of the cylinders has increased the power of the four-cylinder 20 H. P. engine to 28 H. P., and the six-cylinder 30 H. P. engine to 42 H. P.

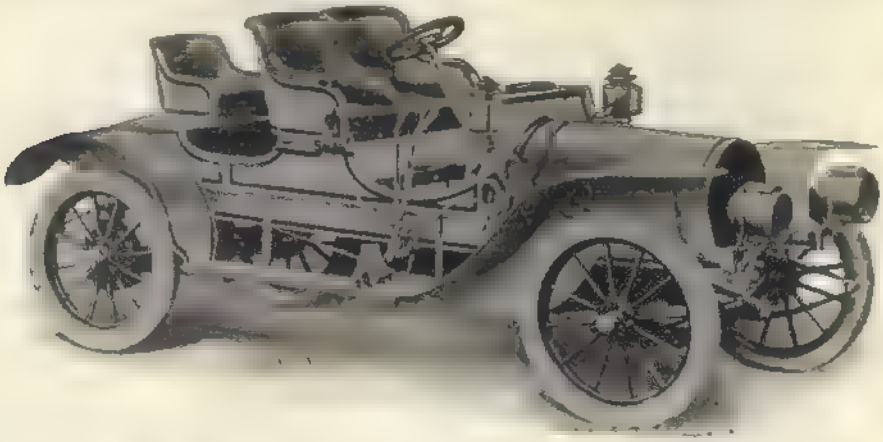


Fig. 2. The 1908 Franklin Runabout. This machine is built with the chassis and engine of the Model D. It has a four-cylinder, 28 H. P. engine, has selective transmission, 105-in. wheel base, a speed of 50 miles an hour and weighs 2,000 lbs. It sells for $2,350.

THE CONCENTRIC VALVES.

The Franklin Company has brought out something entirely new in motor car construction, their engines being built with semi-spherical or dome-shaped head cylin-

ders and concentric valves; the dome head cylinder being considered ideal for internal combustion engines for the reason that a sphere exposes the least surface for any particular volume. Thus the cubic charge volume content is a maximum with the minimum amount of internal cylinder wall,

Fig. 3. 1908 Franklin Model G Brougham. This little car has the Model G chassis, the smallest of the Franklin line. Motor 16 H. P. air cooled, 3¼ x 3¼ inches; wheel base 90 inches, tires 30 x 3 inches front, and 30 x 3½ inches rear, weight complete 1,800 which makes it one of the lightest enclosed body cars built. Price $2 250.00

while the external cooling flanges remain the same; also raises the power by allowing the incoming gases to be kept at a lower temperature than otherwise.

that which can be secured through the concentric arrangement, and consequently restricted the horse-power by making impossible the securing of the entire efficiency procurable from a given size cylinder. It also adds to the cooling ability of the motor by insulating the exhaust valve from the cylinder, the exhaust passing out through the centre valve.

By this method the mean temperature of the main exhaust is greatly reduced, and the chance of this valve needing regrinding, due to heat, is largely eliminated. This construction is also particularly well adapted to use on Franklin motors on account of their auxiliary exhaust valve, which carries off 71 per cent. of the burned gases immediately upon completion of the downward stroke of the piston.

OILING

The oil baffle plate which is placed between the engine base and each cylinder is used on the 1908 models. By reason of this plate the oil in the engine base is not ineffectively splashed upon the working parts, but is drawn up by the piston suction through an opening on the working side of the piston, and from there it gradually works around to all points.

AIR COOLING

The cylinders of the 28 and 42 horsepower engines are equipped with flanges made from high elastic limit phosphor

Fig. 4. 1908 Franklin Change Speed Gear. Three speeds forward and one reverse, operated on the selective system. This gear complete weighs but 85 pounds and it is claimed will transmit the torque of a 90 H. P. engine

The intake and exhaust valves having a common centre, are concentric in their construction, and being arranged in this manner, a greater valve area is made possible, permitting the taking in and exhausting of a larger amount of gas than through the old method of separately constructed valves which has limited their size, when placed in the head, to one-half

bronze. These flanges are shrunk on by a special process, and when the cylinder becomes heated it causes their contact with the cylinders to become tighter, consequently increasing their radiating ability. The number of flanges on the cylinders are varied, according to the position of the cylinder, as regards the cooling fan, thereby causing the temperature of all cylin-

The Frayer-Miller 1908 Pleasure Cars

The Oscar Lear Automobile Company, formerly of Columbus, now located at Springfield, Ohio, are offering for 1908 a line of commercial as well as pleasure cars. The company states it was necessary to take up a new location, in order to increase its output, to meet the growing demands, both in commercial and pleasure cars and that it is now prepared to build cars to meet every requirement, having some of the best facilities in the country.

Several new models have been added to the line for 1908 in addition to the Model B 5-passenger, 24 H. P. Touring Car, $2,750.00, the 24 H. P. Landaulet or Town Car $3500.00, the Limousine, $3,300.00, the Model C, 7-passenger 50 H. P. Touring Car, $3,500.00 and the 50 H. P. Model C Runabout, $3,500.00. The new cars are the Philadelphia runabout and a combination touring car.

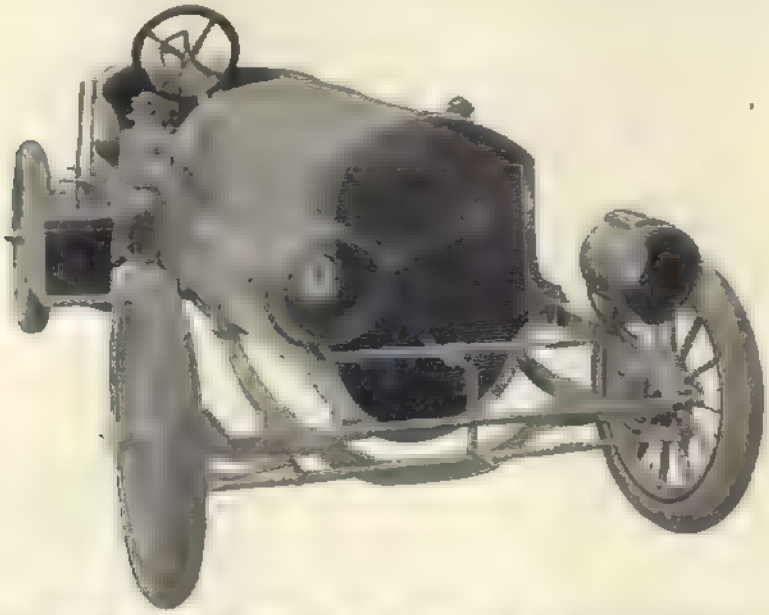


Fig. [illegible] Frayer-Miller Philadelphia Runabout. Motor 4-cylinder, 24 H. P. "Frayer-Miller Air Cooled" [illegible] Positive [illegible] by [illegible] oiler, sliding change speed [illegible] speeds [illegible] shaft [illegible] floating rear axle. [illegible] base 100, tires 32x4. The [illegible] is [illegible] 4 to 1 [illegible] the starting crank is on its shaft, thus reducing to a minimum the effort necessary to crank the motor. Weight 1,850. Equipment 2 gas lamps, 2 side lamps, tail light, tire holder and tool kit. Price $2,25[illegible]00.

THE PHILADELPHIA RUNABOUT.

The Philadelphia Runabout, is an ideal two passenger car, for both business as well as pleasure, it is very snappy at all times owing to its light weight and high power. It has a very racy appearance, and all the qualities of an easy riding car, having a wheel base of 100 and tread of 56 inches. The motor is a 24 H. P. 4-cylinder $4\frac{1}{16}''$ bore by $4\frac{1}{16}''$ stroke, Frayer-Miller air-cooled, which system it is claimed is the most positive ever put before the public and cools perfectly, whether in crowded streets, on the steepest hill or in the Death Valley at a temperature of 120.

FRAYER-MILLER POSITIVE COOLING

The air cooling methods are continued from year to year practically without change. The cylinders are cast separetely with integral cooling pins, and ribs, on the upper part for assisting convection. The main air conduit from a blower in front leads up over the tops of the cylinders, and is made of aluminum with individual air jackets for each cylinder. The centrifugal blower is geared to the crank shaft at a ratio of 4 to 1. The starting crank goes on the blower shaft, and thus engine cranking is made very easy. The cooling is proportional to the heating whether the car is moving or standing still.

The crank shaft consists of five long bearings, of Parson's White Brass. The Atwater Kent System, of ignition is used on the Philadelphia runabout, and is most simple and economical. For the lubrication the McCord Precision oiler is used, which is mechanically driven, insuring prompt lubrication at the proper places, by copper tubes leading from the oiler. A cone clutch is used and operated by a pedal which insures a very easy and gradual starting of the car. The frame is cold prest steel, 4 by $1\frac{1}{4}$ inch, the sub-frame being of the same material. The change speed gears are of the selective type housed with the rear axle assembly and is equipped throughout with ball bearings.

The change speeds consists of three forward and one reverse, driving direct on high, and are operated very simply by one hand lever. The rear axle is of the floating type, and the front I-section. The tires used are 32 by 4, and the light weight and the large wheels used on this model, add greatly to the life of the tires. The equipment consists of two gas and two side lamps, including tail light, and complete equipment of tools.

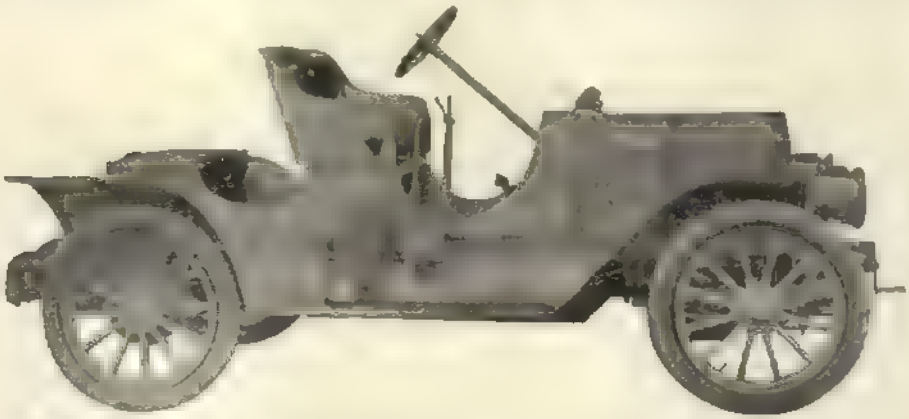


Fig. [illegible] Frayer Miller Combination Runabout. This car is fitted with a 4-cylinder air cooled motor familiar to the Runabout but is arranged to take a large tool box single rumble seat or a surrey seat to accom- [illegible] a two or three passenger runabout or a five passenger car. The general specifications are [illegible] the other models. Weight complete [illegible] Price fully equipt and including all combinations $2 500 00.

THE COMBINATION RUNABOUT

The Combination Runabout is a new car that is so arranged that its seating capacity can be varied to suit almost all conditions and will doubtless therefore, be a very popular car with 1908 purchasers. It will accomodate either two or three passengers as a runabout and five as a touring car. It is said the demand for this kind of car has been steadily increasing It is equipped with a 4-cylinder, 24 H. P Frayer-Miller air-cooled motor. The lubrication as well as the ignition system, are the same as on the Philadelphia, runabout the wheel base is 100 inches with a tread of 56, a a frame of prest steel four by one eighth inches. The transmission is of the sliding gear type, giving four speeds ahead and one reverse and equipped throughout with Hess Bright bearings. The hardened gears, one inch face, are made of special carbon steel, and 6 pitch, all are operated with one lever, by a special gear shifting, arrangement which makes the shifting, very simple with all speeds. The quadrant is of the modified H slot type, which governs the gear shift-lever, without looking on the part of the driver, and the shifting of the gears are made silently on all speeds. The car is shaft driven. As so many combinations are furnished this car, it is suited to the purpose of a large class of users.

The equipment of the combination runabout consists of two gas and two side lamps, including tail light, and everything necessary for the road.

Nortmann-Duffke's Cold-Drawn Seamless Steel Work

Nortmann-Duffke Foundry Co., 26th and Layton Aves., Milwaukee, Wis., manufactures an extensive line of cold-drawn seamless steel specialties such as acetylene tanks, gasoline tanks, compressed air tanks, and numerous other articles of similar nature for the automobile trade. These tanks will stand a hydraulic pressure test of 150 to 1200 pounds per square inch, the thickness of the material in the complete article being in accordance with the test resistance desired. All products are thoroly coated (tinned or galvanized) inside and out. Besides drawn steel work this concern also makes pressed, deep stamped and drawn steel, brass, or copper specialties; steel and gray iron castings, and does electroplating of all kinds.

Denatured Alcohol for Non-Freezing Solutions

U. S. Industrial Alcohol Co., 100 William street, New York City, are manufacturers of denatured alcohol, and are selling their product to the automobile trade for non-freezing solutions for the circulatory systems of gasoline motors. Before recommending denatured alcohol for this purpose a great deal of experimentive work was done by their mechanical department under the direction of Irwin Buck, M. E.

This company calls attention to the fact that denatured alcohol has no corrosive action on any of the metals with which it comes in contact and its ability to withstand cold is indicated by the fact that its freezing point is about 160 deg. F. Its composition is always constant, as it is made under a formula prescribed by the government. It contains no solid matter, consequently requires no filtering before using, and there is no danger of its clogging the radiator.

one lever on top of the hand wheel which has a neutral position straight ahead and is moved to the right for throttle regulation. If this lever is moved from neutral to extreme left it advances the cam-shaft 90 deg., closes the throttle and opens the intake valves to the atmosphere, converting the motor into a 2-cycle air compresser, thus enabling the motor itself to become a brake to retard the car. This motor resistance, the ordinary brake of this truck, is highly efficient and causes no wear or heating. The 90 deg. advance of the cam-shaft causes the exhaust valves to act as both exhaust and intake valves, and so enables the motor, in connection with the intake valve, to work as an air compresser, 2-stroke cycle, giving two cylinders constantly in work as compressers.

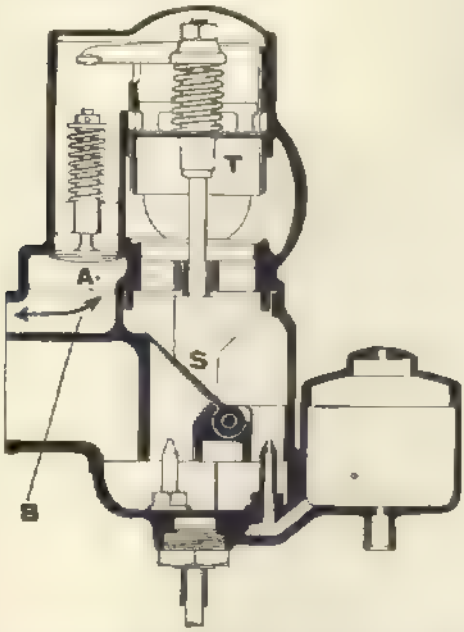


Fig. 3. Sauvert Operator Safir Motor. This a float feed to two stand pipes [illegible] that the right in a throat of fixed area richly charges the air which enters at the left and passes the left stand pipe without effect. The left stand pipe is also in a throat of fixed area, covered by an inclined valve, S, spring-closed. Heavy piston suction opens S and permits parts of the charge to pass upward around the nozzle of the left stand pipe, which has a smaller opening than the right hand nozzle and makes the less rich charge. The throttle T, [illegible] cylinders is closed and the air valve. A is depressed and opened so as to permit the atmosphere to move both in and out at B, while the motor is working as an air compressor to serve as a brake.

The inside hand-lever works in three planes and shifts the selective change gear. The inside hand-lever is pulled backward to apply the rear-hub drum brake-shoes. There are two pedals on the foot-board; that at the left disengages the clutch only; that at the right applies the counter-shaft drum brake only.

ON THE ROAD.

A demonstration of the Safir truck was recently made for the National Brewing Co. of Chicago and observed by Mr. Wm. Rehm, its president, when the car carried a load of 4 tons to South Chicago, a distance of between 14 and 15 miles, in 1 hr. and 15 minutes, consuming two gallons of gasoline. The pavements over a considerable portion of the route were excellent, but in many places the streets were entirely unpaved.

On Wednesday morning of the same week it carried two loads of 4½ and 5 tons, respectively, for the Edelweiss Brewery to its La Grange distributing depot all the way over excellent pavements at a gasoline consumption of slightly over one gallon—a distance of 7 miles or approximately 7 miles to the gallon, which is exceptional performance for such a large truck.

The New Atlas 2-Cycle Taxicab

The latest production of the Atlas Motor Car Co., Springfield, Mass., is the small town car or Taxicab, herewith shown. It is powered by an Atlas vertical, two-cylinder, two-cycle, 22 H. P. motor, having only five moving parts, the crank-shaft, two connecting rods and two pistons. There are no cam-shafts, gears, springs or poppet valves, and the cooling is by thermo-syphon circulation, eliminating the pump and fan. A vertical tube radiator is used. The ignition is by jump spark with the timer mounted direct on the engine-shaft, and two coils on the dash. Current is supplied by dry cells, storage battery or magneto. All moving parts of the mechanism are enclosed and run in oil or grease.

PLANETARY CHANGE SPEED.

A two-speed and one reverse planetary is used, the high-speed clutch being of the multiple disc type. The gear ratios are low, 2 to 1, reverse 3 to 1. All shafts and studs are ground and polished and the inside bearings are of bronze, while the two main bearings are Hess-Bright ball. All gears and working parts are hardened and ground to exact size. The friction bands are Raybestos lined, are 10 ins. diam. and 3 ins. wide.

The drive is by shaft fitted with improved extra large splicer joints equipt with hardened and ground bushings and studs.

Two sets of brakes control the car when [illegible] The service brake is 10 ins. dia. by 3 [illegible] wide, lined with Raybestos, and the emergency brakes on the rear wheels are of the internal expanding type and 12 ins. in dia., giving an unusually large braking surface for so small a car.

The springs are three-quarter elliptic front and rear, the front being 40 ins. long and the rear 48 ins. long by 2 ins. wide.

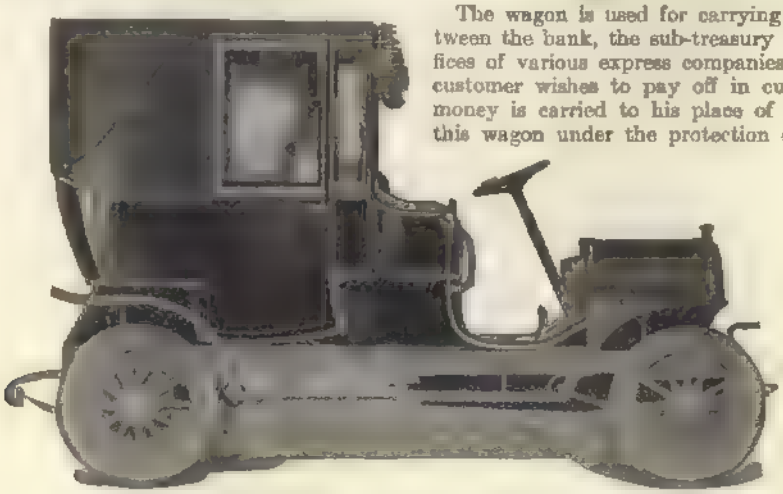
The frame is selected white ash, of arch construction, to eliminate sag and reinforced with steel angles.

The rear axle is of the floating type, with

clutch-driven wheels, and no weight supported by the live shafts. The construction thruout is mounted on Timken roller bearings The front axle is I section and all the wheels are on roller bearings and fitted with 30 in by 4 in. non-skidding tires and quick detachable rims. The wheel base is 100 ins and tread 56

BODY.

The body is of aluminum or sheet steel equipt with two permanent seats in the rear, these seats being 45 ins. wide, rear seat 20 ins. deep, front seat 12 ins. deep with 20 in space between the two seats. The doors have a 22 in. opening. The front seat will carry one passenger beside the driver, and the carrying capacity, including the driver, is six people. The upholstering, painting and trimming are to specifications.

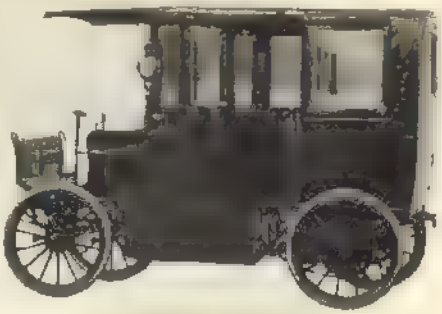


The Atlas Taxicab

The car can turn inside of a 25-foot circle, has a maximum speed of 30 miles an hour, and, it is claimed, its speed can be regulated from 3 to 30 miles an hour by the engine control alone. The car weighs, complete, ready for service, 2300 pounds, and the list price is $2600.

Studebaker Electric Bank Wagon

The National Bank of Commerce of St. Louis, Mo., has recently put into commission an Electric Bank Wagon which was built for them by the Studebaker Automobile Company of South Bend, Indiana. The chassis of the wagon is a regular Studebaker Electric Chassis of 1500 pounds capacity. The body was built upon the Bank's specifications. A door opens on each side in the center. Just in the rear of the driver's seat and extending under it, and wholly inside of the body is located a strong box made of wood and lined with heavy sheet steel. This is divided into five compartments and fitted with a strong lock. Inside the body in the rear, extending across its full width, is located a seat for the person in charge of the wagon and the officer or guard. The inside dimensions of the body are: Length 6 ft. 8¾ in., width 40½ ins., height 57 ins.



Studebaker Bank Wagon

The wagon is used for carrying money between the bank, the sub-treasury and the offices of various express companies. When a customer wishes to pay off in currency, the money is carried to his place of business in this wagon under the protection of a guard There are times when the wagon transports over 9000 pounds of money between different parts of the city in one day. With a 1000 pound load the wagon has a radius of forty miles and a speed of twelve miles per hour. Since its installation it has not been out of commission for five minutes and the officers of the Bank are very much pleased with the wagon's performance.

The American Locomotive Automobile Company of Providence, R. I., are reported as building 100 Taximeter cabs for service in New York City.

Wm. W. Striker, a promoter of Butte, Mont., is using three special Cleveland Tourabouts in and around Butte, for showing his customers various properties under his control.

A uniform schedule of charges for labor and supplies is being maintained by the garages of Indianapolis, Ind. Notices have been posted in the different garages that labor will be charged at the rate of 60 cents an hour, gasoline 20 cents a gallon, oil 20 cents a quart; 75 cents a gallon and 1.00 a gallon in cans.

The 1908 Victor Models

The Victor Automobile Mfg. Co., St. Louis, Mo., still impressed with the idea that the automobile that is destined to hold a permanent place in the economic life of the people of this country is not the elaborate, cumbersome and expensive type, which heretofore served only as a luxury for the rich, but a machine that will travel exactly the same roads, do exactly the same work and do it at the very minimum cost of running, has placed upon the market its 1908 line at a minimum price, varying from $575 to $750.

The various models have as a basis the same chassis, using a two-cylinder opposed, air-cooled motor, placed crosswise under the hood on the front, and a friction change speed gear with side chains to the rear wheels.

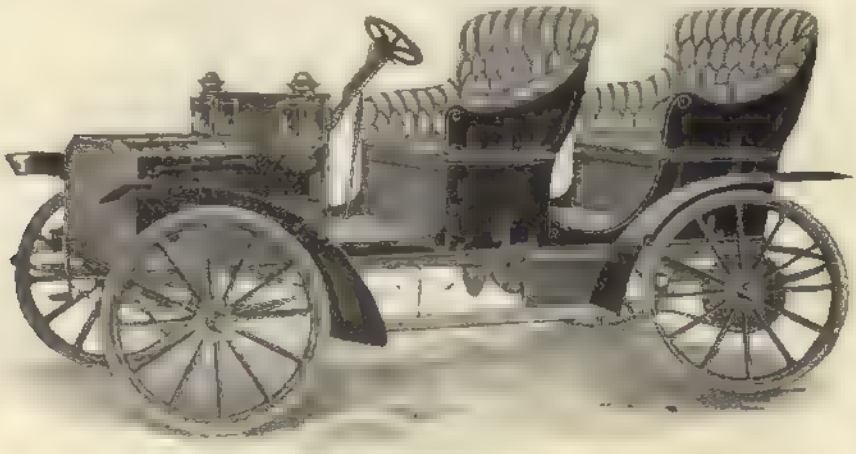


Fig. 1. The 1908 Victor Model "D" run[illegible] with [illegible] 28 in[illegible] wheels, with pneumatic tires. Motor 2 cylinders opposed, air cooled, [illegible] the hood [illegible] drive and side chains to rear wheels. Wheel base 84 [illegible] clearance with pneumatic tires 11¾ inches and 16¾ when fitted with large 36 inch wheels and solid tires. Price $[illegible] without top.

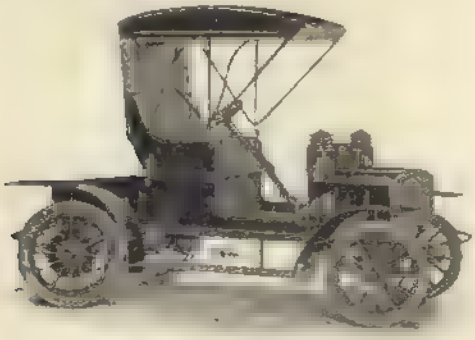


Fig. 2. [illegible] Victor Model "F." Same chassis specifications as Model "[illegible]," except the wheel base is 94 inches. Price $700, fitted with pneumatic tires.

The models are "C," a runabout with solid tires, $575; "D," a runabout with pneumatic tires; "F," a surrey, $700; when fitted with pneumatic tires this model can also be had with a cape top, and the Victor Pullman, with one seat and closed body, equipped with sides and doors for winter use, $750. These sides and doors are removable, leaving a light top and protective front. A small delivery car, Model H, is also arranged on the same chassis, price $650. This rig is suitable for light delivery and for collection of mail.

The machines are said to be able to make 30 miles an hour and negotiate easily sandy or hilly country. The wheel base of the single-seated cars is 84 inches, and of the two-seated cars and delivery wagon 94 inches.

THE POWER PLANT

The motor is two cylinders, opposed, with valve in the head, all mechanically operated. The cylinders are of high grade air-furnace iron, with flanges of extreme depth to insure perfect cooling. All ports are bored and ground to size. The pistons and rings are of the same material and ground to gauge. The crank shaft is machined from a solid billet of low carbon steel, case hardened and ground. The camshafts and push rods are of machine steel, also case hardened, and all run in oil. The connecting rods are of phosphor bronze, with Parsons white bronze bearings. The valve cages are easily removable for inspecting and grinding the valves. The carburetor is of the usual float-feed automatic type.

Ignition is by jump spark from two sets of dry cells. Oiling is by force feed with sight feeds on the dash.

The engine is placed crosswise under the hood at the front, so there is a free circulation of air around the cylinders, and in addition the large fly-wheel which is in front is cast with integral fan blades. This motor, it is claimed, has been thoroly tested on the road and has been run suc-

cessfully for eight hours continuously under full load in a stationary position, as a test of its cooling ability.

THE FRICTION CHANGE SPEED GEAR

The oblique view of the chassis, Fig. 3, shows the general arrangement of the power plant and friction change speed.

The motor is set slightly on an angle, so its prolonged crank-shaft extends backward and slightly downward, and carries at the end a plate faced with aluminum against which the fibre-edged transversely movable friction wheel operates. This wheel, as usual, is splined or feathered to the jack-shaft, which has a differential at one side and drives to the rear wheels by side chains. These chains are 1 in. x ½ in. Diamond, with 9-16 in. rollers, and are tested to 5000 pounds. This arrangement, of course, provides all speeds forward and reverse, and is easily operated by a single side lever and one pedal. The usual spark and throttle control levers are under the steering wheel

The internal expanding brake of the Victor is self-contained, and always concentric with the brake-drum, so that when the brake is set it clutches with equal force the entire circumference of the drum, and when released does not drag.

For 1908 both front and rear axles are I-section, giving a light, rigid construction. The wheels are 36 inches in diameter, of artillery type, fitted with 1¼-inch solid rubber tires, giving the machine 16¾ inches clearance. Low wheels, fitted with 28-inch pneumatic tires, can also be had, the rig having a clearance of 11¾ inches when thus fitted. The width of tread is either 56 or 61 inches, as ordered. The frame is of angle steel, all one piece except the cross members at the middle which are also angle steel, hot riveted.

Full elliptic springs perched on top of the axles are used both front and rear.

A gasoline tank of seven gallons capacity is supplied, feed being by gravity. The car complete weighs about 900 lbs. when fitted with two seats. The bodies are finished in colors to suit. The seats are 36 inches wide, expanding to 42 inches at the top, and are generously upholstered in leather. A large carrying space is provided in the runabout body at the rear.

The prices are f. o. b. St. Louis and include two brass oil lamps, horn and tools. Brooks' Automobile Handbook is also given each purchaser in addition to the regular card of instructions. Tops and searchlights are extra

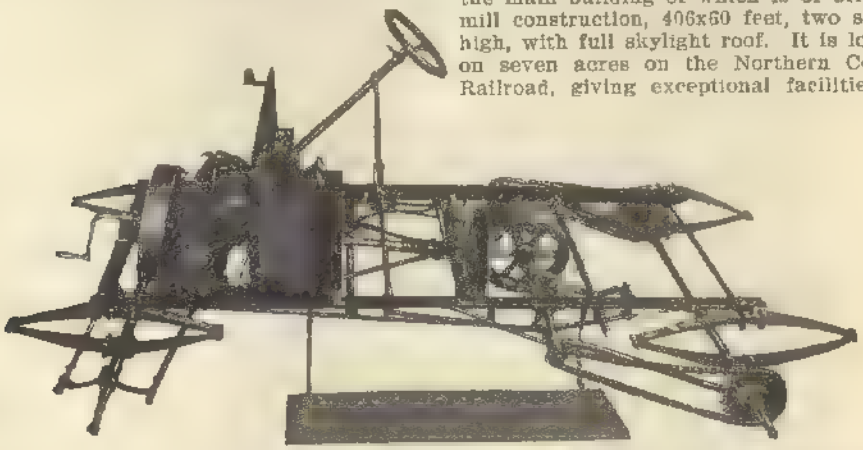


Fig. 3. Chassis of Victor "Hand-Forged Automobiles," showing 2-cylinder opposed motor under the hood at the front, arrangement of friction driving wheel and disk chains to rear wheels and full elliptic springs all around.

Mora Company's New Plant

The Mora Motor Car Company, Newark, N. Y., is moving into its new plant, the main building of which is of brick, of mill construction, 406x60 feet, two stories high, with full skylight roof. It is located on seven acres on the Northern Central Railroad, giving exceptional facilities for shipping. A special siding has been graded down so the floors of the cars will be on a level with the factory floor. A testing house, with doors the entire length, with pits back of each, the pits being fitted with automatic ventilators, is a feature

An isolated building of concrete block for the heating plant is built at the far end of the building next to the railroad which allows of coal being dumped from the car to the fire-room. The blacksmith shop is just beyond the boiler house, isolating such work from the main building.

Plans are made for other buildings to be located parallel with the first main building, and when completed the several buildings are to be connected by a building across the south end

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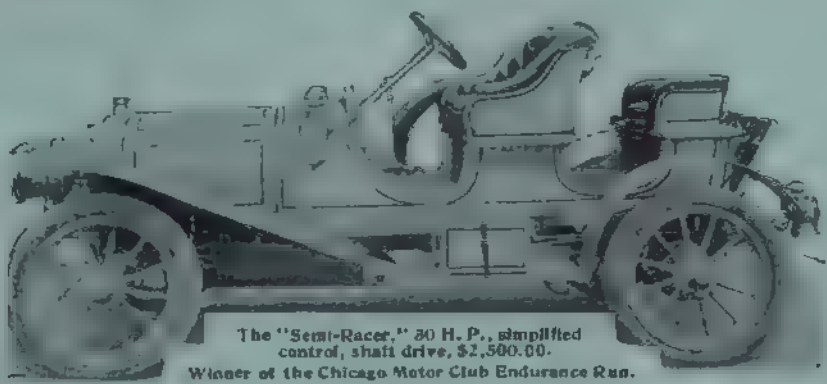
The Contest Committee of the Quaker City Motor Club has declared the Pullman car winner of the Philadelphia to Savannah race between it and a Studebaker, the latter being disqualified for not adhering to the regulations previously agreed to.

HAYNES

ANOTHER PERFECT SCORE

The recent Chicago Motor Club Endurance Run was the severest and yet the fairest test of cars ever held. The contestants were sent over 600 miles of poor roads at a good speed, adjustments or repairs on the road being penalized. At the end an expert committee overhauled the cars to find any weaknesses exposed by the strain of the run. Every twisted frame, broken bearing, loosened nut, ignition failure, etc., was penalized. Only the car was absolutely ready to enter another contest unchallenged—the Haynes entry—and the committee, after two days work, awarded the Haynes the ONLY PERFECT SCORE.



The "Semi-Racer," 30 H. P., simplified control, shaft drive, $2,500.00.
Winner of the Chicago Motor Club Endurance Run.

The best known high priced American cars were entered (three entries apiece in some cases) and the Haynes victory with a single entry of their lowest priced model corroborates the evidence of the Vanderbilt Cup Race, the Albany Endurance Run, the Sealed Bonnet Contest and the "trouble proof" stories of a thousand owners.

The car that won this victory was a 30 H. P. Model S that had been run for months as a demonstrator. The cost of this type is $2,500. It is made by the oldest manufacturers of automobiles in America who built the first American gasolene car in 1893 and have led in successful invention ever since.

Other models 45 H. P. Touring Car or Runabout, $3000
60 H. P., 7 passenger Touring Car or Runabout, $3750

All the models have direct drive through an exclusive roller pinion system whose practicability is proved by four years of use in Haynes cars. The 60 H. P. model is probably the only heavy car built without the noisy and inefficient driving-chains.

A FEW DESIRABLE OPENINGS FOR GOOD AGENCIES.

HAYNES AUTOMOBILE COMPANY, KOKOMO, IND.

Oldest Automobile Manufacturers in America. Members A. L. A. M.

NEW YORK: 1715 Broadway CHICAGO: 1720 Michigan Avenue

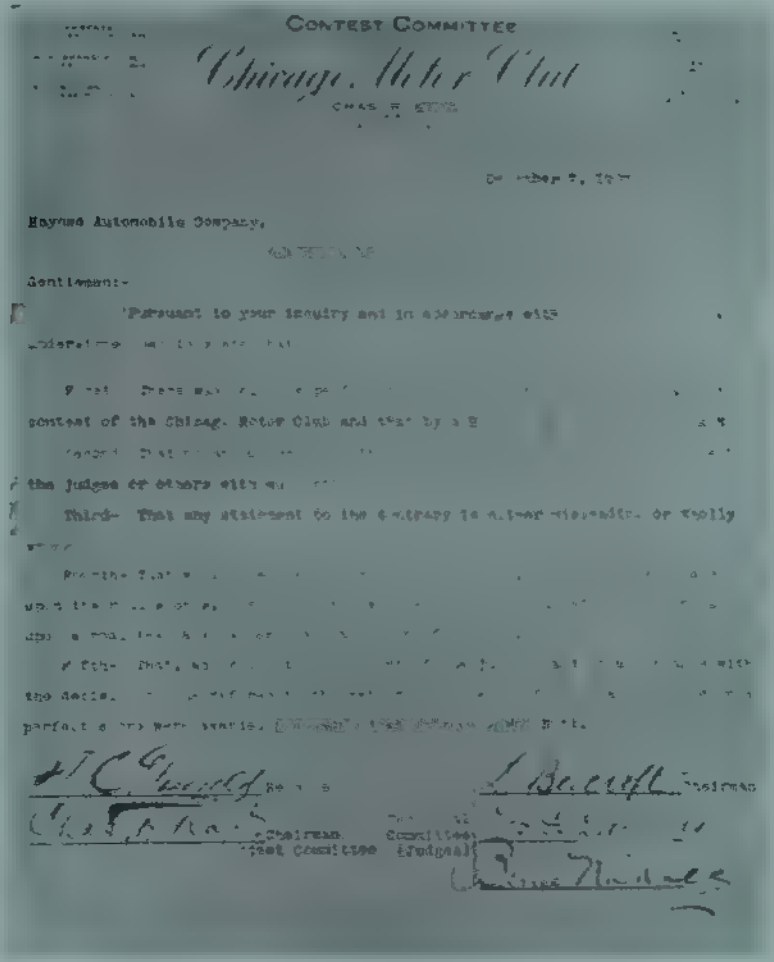
HAYNES

GREAT VICTORY

In the Chicago Motor Club Endurance Test

This is a copy of our Official Notification of the Haynes Victory

(See opposite page.)



CONTEST COMMITTEE

Chicago Motor Club

Haynes Automobile Company,

Gentlemen:-

'Pursuant to your inquiry and in accordance with

contest of the Chicago Motor Club and that by a

the judges or others with

Third- That any statement to the contrary is either misleading or wholly

the decis

perfect

Chairman Test Committee

Committee (Judges)

HAYNES AUTOMOBILE COMPANY, KOKOMO, IND.

Oldest Automobile Manufacturers in America. Members A. L. A. M.

NEW YORK 1715 Broadway CHICAGO: 1702 Michigan Avenue

HOLSMAN

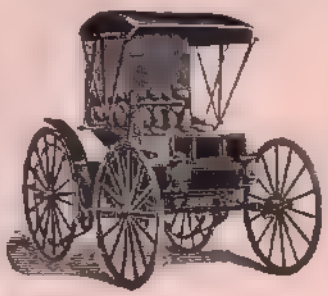
Competitors Always Copy A Success

The HOLSMAN is a success—the first success of its type—a type that will endure because based on common sense, economy, and reliability

Five years ago the HOLSMAN was the only high wheel automobile made. To-day there are numerous cars of the HOLSMAN type. Isn't this enough to convince you that the HOLSMAN is the car of the present and the car of the future?

COST OF UP-KEEP

As the automobile buying public become educated by bitter experience—more and more will the value of a car be judged by what it costs to maintain it We believe that the records of our users will show the lowest cost of up-keep of any automobile now in general use in this country



MODEL No. 8

MODEL No. 9

The oldest and largest manufacturers of buggy automobiles.

THE CAR WITH

RECORDS

5 YEARS OF SUCCESS

The records of the Holsman Automobile in public contests date back to 1902, when it won a blue ribbon in the

Chicago 100-Mile Reliability Run of That Year

Some of the more recent records are

Chicago 100-mile Reliability Run, July 26, 1906:

Perfect Score in Runabout Class and First Place in Touring Cars in Our Class

Algonquin Hill Climbing Contest, Sept. 6, 1906:

Making Better Time Than Machines of Nearly Double the Price

Algonquin Hill Climbing Contest, August 9, 1907:

Fastest Time in Its Class

Chicago 150-Mile Reliability Non-Motor Stop Run, June 28, 1907:

Perfect Score

Chicago 95-Mile Fuel Economy Contest, Sept. 13, 1907:

Smallest Gasoline Consumption, with One Exception. 29 Miles Per Gallon

MODEL No. 10

MODEL No 11

Holsman Automobile Company

Suite 424 Monadnock Block, Chicago, Ill.

A REPUTATION

The Auburn Cars

The Auburn Automobile Co., Auburn, Ind., U. S. A., offers for 1908 two models with similar chassis. The touring car herewith illustrated, Fig. 1, and the runabout, Fig 2. The model H is a 5-passenger car following the general lines of a 4-cylinder machine altho the motor is two-cylinder opposed located lengthwise under the body The cylinders are water cooled, 5¼ bore by 5 inches stroke, rated at 24 H. P. The power is transmitted by means of a thru speed and reverse planetary and center chain drive to the divided rear axle. Semi-elliptic front springs and full elliptic rear are used, both banded and perched on top of the axles. This model complete weighs 2000 lbs. and is fitted with three oil and two gas lamps with tank or generator at the purchaser's option, a four bow black top extra quality and complete set of tools

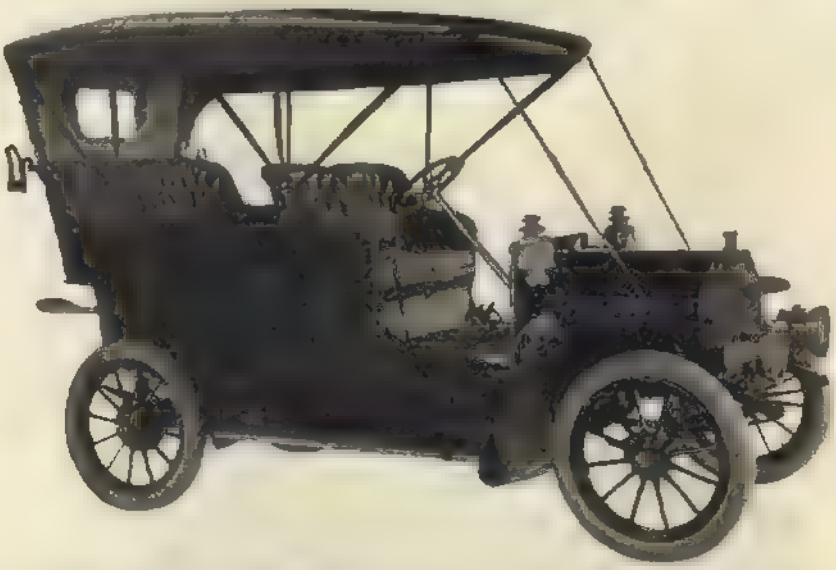


Fig. 1. Auburn 1908 Model H 5 passenger touring car, wheel base 100 inches, gauge 56 in., tires 32 x 4 in., motor two cylinder opposed, water ed 5¼ in. bore x 5 in. stroke 24 H. P., planetary transmission, 2 forward speeds and reverse, chain drive divided rear axle. Weight 2,000 lbs. Price on application, including 3 oil and 2 gas lamps with tank or generator; four bow black top extra quality) storage battery, complete set of tools and metal apron full length of car. Model G same as H with 32 x 3½ in. tires, less top, gas tank and storage battery and gas lamps, price $1,350

Ignition is by storage battery and coil the usual spark and throttle levers being placed on the steering wheel. The side lever controls the high speed and the reverse and low are by pedal. The wheel base is 100 inches, gage 56 and 32x4 inch tires

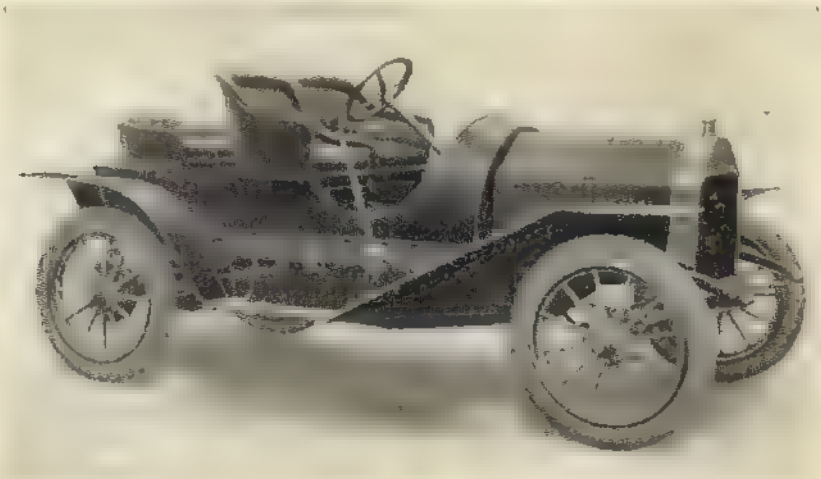


Fig. 2. Auburn 1908 Model K Roadster on chassis. Fig 3, special body fenders, with different gear ratio and special valve setting adapted for greater speed. Price $1 250.

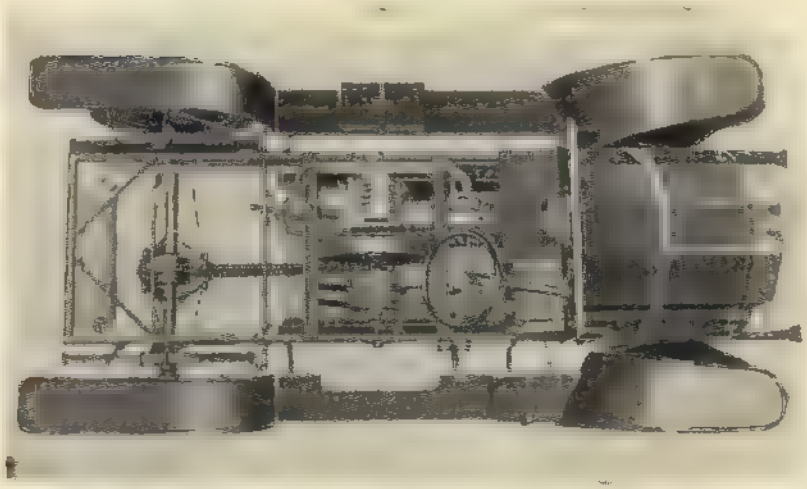


Fig. 3. Auburn Model G chassis, shows the arrangement of mechanism, the ease with which the transmission may be reached, the location of mechanical oiler, the foot pedal, gate, battery and tool boxes. The pressed steel frame, with side members of channel section, 1½ in. x 4 in. by 3-16 in., with drop forged spring bar and yoke ends, is especially adapted for hard use. The sheet metal work on fenders, bonnet, etc., is of neat design, and ample gauge metal.

are used. Large power in proportion to weight, ease of control, accessibility and simplicity, are the features claimed for this car.

The model K roadster, Fig. 2, has the same general chassis specifications, but the gear ratio and the valve setting of the engine are adopted for higher speeds, the weight being somewhat less. The frame is pressed steel of 3-16 inch stock, channel section 1½x4 inches. The large opposed motor is hung as shown in Fig. 3 from two channel section cross members, from which the bands of the planetary are also hung in such a way as to prevent dragging.

Lubrication is by a positive force feed oiler located on the top of the engine case and feeds lead to the top of each cylinder and to the crank case. A small tube carries oil from the top of the piston to the wrist pin bearing a chain in the sectional view of the motor, Fig. 4. The noteworthy features of the motor are, steam hammered crank, 1⅞ in. main bearings, and 1¾ in. wrists, bearings of nickel babbitt, piston and rings ground accurately to size, large piston pin hardened and ground, connecting rod upper end bushed with manganese bronze, large valves and stems, ample area to inlet and exhaust ports and piping, especially large hand hole on top of crank

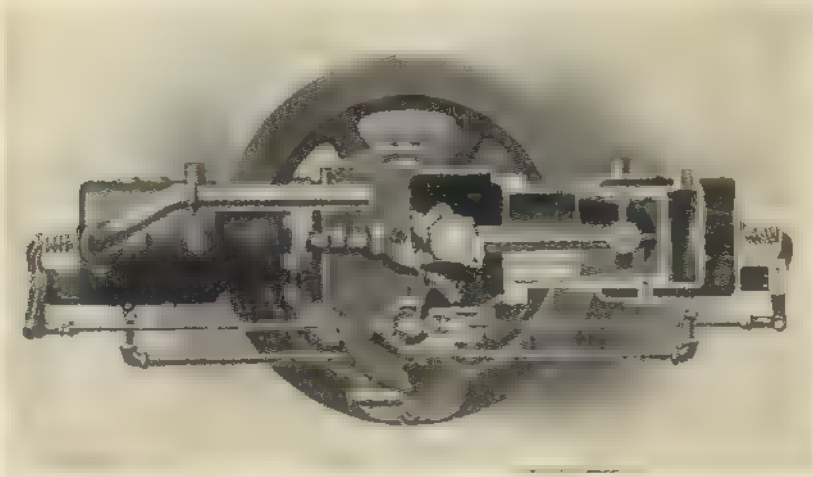


Fig. 4. Sectional View of 1908 Auburn Motor, showing arrangement of cam shaft below the main shaft, mechanical operation of valves and the special provision for oiling the wrist pin by means of the oil from the cylinder walls passing thru the tube in the piston wall

case, cams accurately machined and set.

The connecting rod caps are split diagonally and hinged bringing the bolts in an accessible position. The cam shaft is at the lower side where it is copiously oiled, and at its outer end the timer is located Below is the circulating pump driven from the cam shaft gear. All valves are mechanically operated as shown and the exhaust escapes thru a long pipe to the muffler located crosswise at the rear of the frame.

The transmission of an improved planetary type with large gears of special Midvale Steel, with a low gear ratio or 2.4 to 1 make car especially fast, and accuracy in machining makes them run smoothly and without noise. All cars are thoroly tested before leaving factory and are ready for the road when received by purchaser

The Enlarged Holsman Automobile Factory

The Holsman general offices occupy the entire south end of the fourth floor of the Monadnock Building, Chicago, which is said to be the largest office building in the world. The factory is claimed to be the largest producer in the world of the carriage or buggy type of automobiles. The new model No. 5 is just being completed and is herewith shown, Fig. 1. This car has the same general power plant as the other cars, consisting of a two-cylinder opposed air-cooled motor driving the jack shaft by silent chains, as shown in Fig. 2. This is one of the simplest and lightest power transmissions used in automobiles, and is an important factor in making a light machine. The company believe light machines to be the most durable if properly constructed.

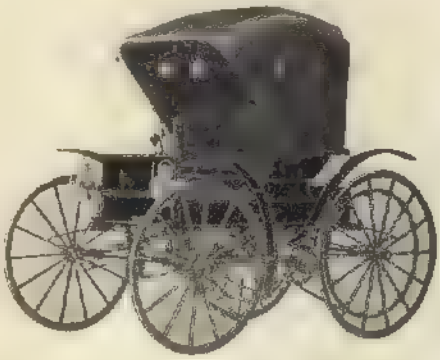


Fig. 1. The new Holsman Model 5 which conforms in a general way to the previous models but has a higher piano box body.

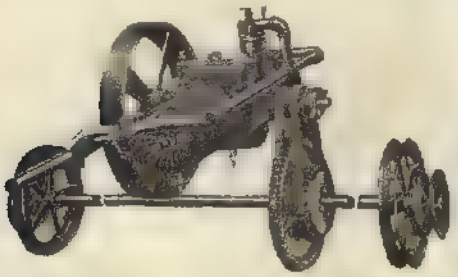


Fig. 2. Power plant of the Model No. 5 Holsman showing the silent chain drive to the counter shaft from the small shives on which special ropes drive thru sheaves on the rear wheels

The machine shop is on the first floor. Every inch of space is utilized with iron-working machinery and is a very busy place. Here the grinding and blacksmithing is done. Automatic saws are used for cutting up stock.

The motor assembling department is on the next floor, and here the assembling and fitting of the various parts of the motors is carried on, the main motor castings being mounted on special cast-iron stands, as shown in the photo, Fig. 4. In the vehicle assembling room, illustrated in Fig. 5, scores of men take the parts made in the machine shop and fit them together into the completed vehicle.

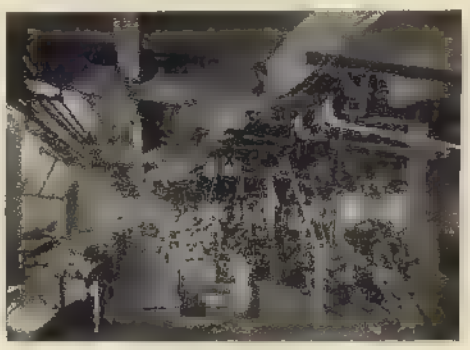


Fig. 3. An aisle in the Holsman machine shop.

Fig. 4. Motor assembling in the Holsman factory. Note the special cast stands for holding the motors while assembling

1908 Berliet Models

Generally speaking, it is not the policy of the American Locomotive Automobile Company to make up its cars into distinctive models to be known by the calendar year, but rather to incorporate improvements, as fast as they are proven out, in the current output of the factory. There are, however, a number of interesting and important changes in the 1908 models known as the Berliet cars. Three different chassis models will be made, one of them being entirely new, with a six-cylinder motor. The other two regular chasses will correspond to the 1907 models in being of forty and twenty-two horse power, respectively, but each embodies several changes.

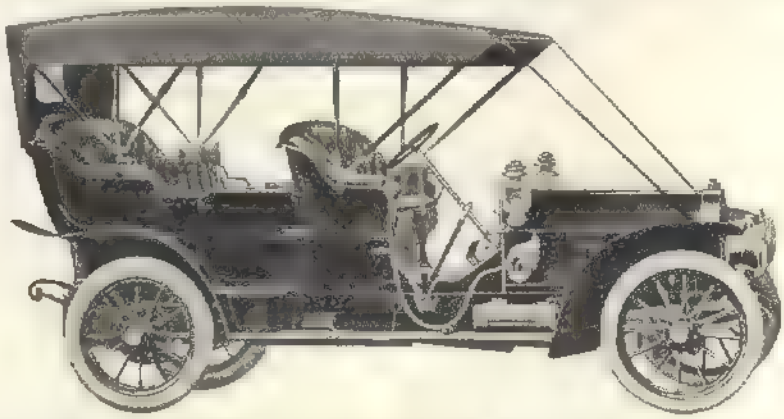


Fig. 1. 1908 six-cylinder 6[illegible] H. P. Berliet. Cylinders 4¾x5½ inches cast in pairs, of vanadium iron, selective sliding gear four speeds ahead and one reverse direct on both the third and fourth. Side chain drive, multiple disc clutch. The frame and axles are said to be of imported vanadium steel. Wheel base 126 inches, weight, with complete equipment, 3600 lbs.; price, $7500, or with limousine body, $8500.

THE NEW SIX-CYLINDER CAR.

The six-cylinder car will be the leader for 1908. It is designed for compactness, lightness, power, flexibility and ease of control. It has the same wheel base as the forty horse power car, 126 inches, and its weight is only 300 pounds more. The six cylinders are 4¾-inch bore by 5½-inch stroke, and the length of the hood is no greater than that of some four-cylinder models. This car, as well as the forty, has a direct drive on both the third and fourth speeds. The ignition is by high tension magneto; it has a force feed lubrication, multiple disc clutch, double chain drive, sliding gear transmission with selective control, four speeds forward and reverse and four brakes, and it is claimed is capable of making 70 miles an hour.

In specific detail, the six-cylinder chassis is similar to the 1907 forty horse power model, except for the addition of two cylinders. There is some difference in the dimensions, as for instance, the front of the radiator is about 7 inches ahead of the front axle, and the bonnet is 45 inches long, while the body extends over the rear of the frame 3 or 4 inches. The chief modifications, however, are in the ignition and lubrication. Jump spark ignition is used with high tension Bosch magneto. The advantages are a reduction in the number of working parts, doing away with all the make and break mechanism, thus reducing the noise. The proper adjustment and synchronizing of the make and break ignition is not entirely understood by the great majority of chauffeurs, and with a high tension magneto this difficulty is eliminated. Results of tests made with the Bosch high tension magneto abroad and here indicate that it is quite as reliable as the make and break.

LUBRICATION.

For the lubrication of this motor, a reservoir has been provided in the bottom of the crank case with a capacity of about two gallons. This is kept filled with oil and is piped to a gear pump driven from the exhaust cam shaft by spiral gears. This pump delivers oil into a tube running thru the bottom of the crank case from end to end, and connected in the most direct manner with the main line bearings. The oil is therefore forced into these bearings on the underside of the shaft, giving a positive and absolutely reliable force feed lubrication at all times. Pet cocks are provided at the side of the crank case for the purpose of gaging the height of the oil when filling the case, the same as in the other models. No constant feed is provided because the capacity of the case itself and reservoir underneath is such that a continuous run of 10 hours or more reduces the level so slightly as to be in-

appreciable from a practical standpoint. No other lubrication is provided in the motor, excepting, of course, grease cups for the magneto, pump and fan shafts, and separate lubrication to the magneto itself, which is embodied in the magneto. The transmission is of the same type as used on the 40 with direct drive on both the third and fourth speeds, but is somewhat heavier all the way thru. In other respects this car is identical with the forty horse power. The price fully equipt of the six-cylinder, with touring or runabout body, is $7500; with a limousine body, $8500

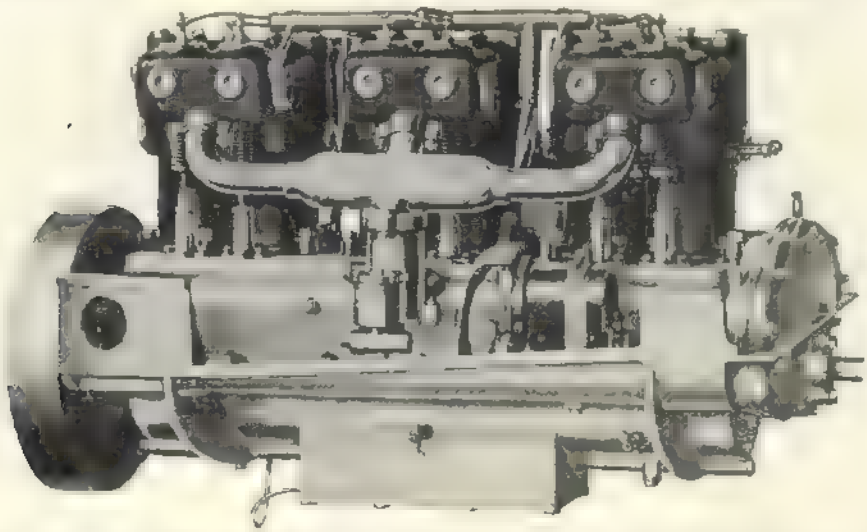


Fig. 2. 1908 Berliet six-cylinder 60 H. P. motor. The bore is 4¾ and stroke 5½. Cylinders in pairs of vanadium iron, which [illegible] wears to a polish, and is better than gray iron. High tension, jump spark ignition by Bosch magneto. Lubrication force feed direct to the bearings with overflow tank at the bottom.

THE FORTY H. P. FOUR-CYLINDER CAR.

There are several changes in the four-cylinder, 40 H. P. model, notably the following: The radiator has been moved back slightly, the front of it now being slightly to the rear of the front axle. The fan fly wheel has been discarded, and a cast iron fly wheel substituted, and a belt driven fan placed directly back of the radiator. The oil tank, instead of being hung to the left side of the car and cutting in the running board, is carried at the left side of the crank case, just under the horizontal web connecting the case with the frame, and its filler cap projects up thru the case, making it very accessible for filling. Instead of forcing the oil from this tank to a float chamber in the lubricator, it is now forced into a sight feed on the dash by means of a small gear pump driven from the cam shaft by spiral gears. The oil delivered from this pump is carried to two sight feeds in which the amount of flow is regulated by hand adjusted needle valves, and from which the oil flows by gravity to the two ends of the crank case. No oil is fed to the cylinders, as it has been found that they are sufficiently lubricated by splash from the crank case. The bearings are also splash lubricated. Any excess of oil forced to the sight feed by the pump returns thru an overflow pipe to the tank.

No change has been made in the carburetor or ignition. The steering gear has been slightly modified. Instead of being attached to the frame, it is now attached to the crank case, and bolted thru the supporting arm of the case and the frame, making a somewhat more substantial construction, and at the same time giving more rake to the steering post. The spark and throttle control levers on the wheel remain the same, but their connections at the lower end of the steering column to the ignition advance and throttle have been changed so as to be entirely above the horizontal web of the crank case where they are entirely protected from water, mud, etc. The multiple disc clutch remains the same as before, and the same transmission is used, with third and fourth speeds direct. The control levers have been changed, so that the brake lever is outside of the gear shifting lever. The price of this model, with touring or runabout body, is $6500. Limousine or landaulet bodies cost $1000 more.

TWENTY-TWO H. P. SHAFT DRIVE CAR.

In this car, the general lines remain the same as heretofore, the location of the motor and radiator being the same. The transmission is entirely new, because of changing from a side chain to a shaft drive, still retaining, however, four speeds and reverse, with direct drive on the high, and the shifting mechanism is of the selective type. The rear axle is of the floating type in which the wheels are

mounted on ball bearings on the axle tube, the driving shaft transmitting the power from the differential to the outer ends of the wheel hubs by means of jaw clutches. In this construction only torsional stresses are applied to the driving shaft, the weight of the vehicle being carried on the stationary part of the axle. With this arrangement it is also possible to remove the driving shaft without removing the wheel. The differential housing is made of one piece with a removable cover, so designed that the entire differential and bevel driving gears may be removed by simply taking off this cover. In fact, all the driving mechanism may be taken out of the axle without even jacking up the car or removing the wheels. This construction also renders the working parts easily accessible for inspection, and also for adjusting in the factory. The axle is trussed and of comparatively heavy construction. No camber is given to the wheels. Radius or strut rods are used connecting the axle with the frame sides, and a torsion bar spring, supported at the forward end, is used to take the driving torque and braking effect. Both internal and external brakes are provided on the rear wheels, and no brake is used on the propeller shaft or transmission. The contracting brakes are operated by a pedal, and the expanding brakes are operated by a hand lever. Air space is provided between the drums of these brakes to facilitate radiation of heat. The gasoline tank is placed under the chassis just back of the axle, as heretofore. Gasoline is forced to the carburetor under pressure, as in the previous models. As this car is built specially for town use, the wheel diameters have been slightly reduced, tires being 880x120 m.m. rear and 870x90 m.m. front. This car, limousine or landaulet, sells at $6000.

All the models, it is claimed, are made of imported materials, vanadium steel and iron truout, and all cars are sold fully equipt for use, including tops.

Single Center Buggy Company's Runabout

In the accompanying photo is shown a 1908 high wheeler, which, in the language of the maker, Single Center Buggy Co., of Evansville, Ind., is, "Not a buggy but a racy looking automobile runabout." This car has 36 inch front and 38 inch rear wheels, fitted with solid rubber tires. It has a long wheel base, and is more of a roadster than anything heretofore shown with large wheels. The motor is a two-cylinder opposed type, 4½x4, rated at 12-15 H. P., is 4-cycle, and has automatic intake valves. A Schebler carburetor is used. The ignition is by jump spark, obtained from storage batteries and a double coil. The engine speed is controlled by means of spark and throttle levers.

The change speeds are by the traversing of a fibre rimmed wheel on a cross shaft, engaging a special metal disc at the rear of the flywheel. The frictional engagement is obtained by means of a foot lever. The drive to the rear wheels is by side chains, the cross shaft carrying twelve tooth sprockets, and 52 tooth sprocket wheels being clipt to the rear wheels. The foot brakes act on the countershaft. The car is steered by a hand wheel thru a worm and segment. The speed is 8 to 25 miles per hour, the changes being obtained by means of a hand lever which serves to move the friction wheel.

The body has panel back seat, and is fitted with mud guards. It is finished in purple lake, the running gear is either red or Brewster green; made wide or narrow track. The company also offers for $800 the same thing, except with 32-inch wheels with 3-inch pneumatic tires. The solid tired machine sells for $675.

Single Center Buggy Company's high wheeled "Roadster Runabout." The motor is two cylinders opposed 4½x4, rated at 12 to 15 H. P. Sarven wheels 36 and 38 inches in diameter, are used with 1½ in. or round solid tires. A friction change speed is used consisting of traversing friction rimmed wheel on the countershaft engaging by pedal action the rear of the flywheel, which has a special metal face. Plenty of parcel room in the rear, and 17 inches road clearance. Timken roller bearings are used in the wheels. Price $675. Another car on similar lines but with 32 inch wheels and 3 inch pneumatic tires is offered for $800.

1908 "Premier" Model 45

The 1908 Premier Model 45 is a handsome seven passenger car with aluminum body and water-cooled motor with the cylinders cast in pairs. The valve chambers carry underneath the valve a longitudinal intake port, and the gases are introduced into these ports thru a flanged T fitting between the pairs of cylinders, making the carburetor connections very short and direct, and insuring an equal draw for each cylinder. The T intake connections between the pairs of cylinders provide for free expansion and contraction between the cylinders, and stuffing boxes insure a tight joint

The top and bottom manifolds are provided with long risers, and due to the comparatively thin and flexible material of which they are made, they take care of the movement between the various cylinders due to contraction and expansion.

The cover plates on the top and side of the cylinders are made of aluminum, and are fastened to the water jackets by small size machine screws, and will give way in case of a freeze-up, preventing the cracking of the cylinders

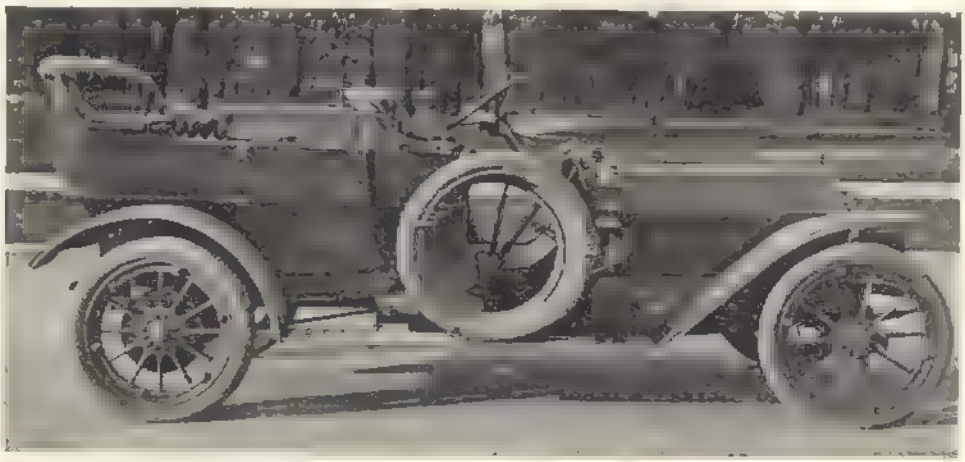


Fig. 1. 1908 Premier, Model 45 Passenger capacity seven. Body of aluminum [illegible] der water cooled motor [illegible] linders cast in pairs with valves on opposite sides. Make and break ignition has been adopted, and a special cushioning device is used on the igniter points, giving a hammer break and automatically takes care of the wear of the points. Current is supplied by a Bosch magneto. Jump spark from storage batteries is also provided. The [illegible] speed and one reverse sliding gear is on annular ball bearings, and the rear axle of the floating type is also on the same kind of bearings

MAKE AND BREAK IGNITION.

For regular use on this 1908 model low tension make and break ignition has been adopted. The Premier system differs from the conventional make and break sparking device, on account of a cushioning device for the igniter points. This feature automatically takes care of the wear of the igniter points, cams and cam contacts, and also provides a hammer break, giving a large sized spark at extremely low speeds of the motor, and makes starting comparatively easy. Both stationary and moving electrodes are prodived with liberal sized radium platinum points. Each pair of igniters is driven by a vertical shaft, and the connection between this shaft and the driving mechanism in the crank case is a 3-jaw clutch coupling. This coupling is marked, and upon removing a cylinder, it is not necessary to retime the spark, for if the clutches are reassembled as marked, the timing is sure to be the same as it was before dismounting

The electrical connection between the igniters and the wood enclosed buss bar battery connection is thru a roll of copper tubes mounted within the buss bar, using switch plugs fastened to the end of the cables for connectors, and providing facilities for testing out each individual igniter

The igniter points on the make and break system are located over the inner edge of the intake valve, as the incoming charge must at all times pass this point, keeping the igniter points cool and clean. This position is the most advantageous location possible, as the charge, it matters not how small, must pass the igniter points.

The make and break system is used as the running spark. The source of current supply is thru the latest type imported Bosch magneto, which is driven by a 3-jaw clutch.

In addition to this low tension system there is a second or auxiliary system consisting of a single coil and a high tension secondary distributor with storage batteries. Both high and low tension sparking systems are advanced by the small lever on the wheel, and each can be independently adjusted.

The cam shaft gears are mounted in a housing in the forward end of the motor, which is cast integral with the crank case. The pump and magneto pinions are mounted in the cam shaft gear housing These pinions are supported between a bearing on either side, doing away with the overhang found in the usual construction. The cam shaft gears are bolted on large diameter flanges integral with the cam shaft in the same manner that flywheels are usually fastened to a crank shaft.

An innovation for 1908 consists in making the lower half of the crank case of prest steel instead of aluminum.

COOLING.

The water manifolds are of solid copper autogenously welded, and are made up of very easy curves to properly proportion the flow to each individual pair of cylinders. The circulating pump is of unusually large capacity, and is provided with renewable bearings for the spindle. It is clutch driven by a fiber pinion mounted in the cam shaft gear housing The drain cock being located in the pump suction pipe, and this being the lowest point, the entire system can be drained by it. The fan back of the radiator is mounted on an aluminum bracket on top of the cam shaft gear housing, and is provided with a neat and effective eccentric belt adjustment.

The lubricating is by a force feed oiler, spiral gear driven from the exhaust cam shaft, and is mounted under the hood. More than ordinary care has been taken thruout to provide ample means of lubrication. The spring shackles are lubricated by compression grease cups thru hollow bolts

The clutch is enclosed within the flywheel and made absolutely dust proof and oil retaining. It is of the multiple disc type. The connection between the clutch and the transmisison is thru a floating shaft squared in the forward end of the clutch spider and engaging the transmission at its other end thru a 3-jaw clutch with its jaws made slightly spherical to allow for any misalignment of motor and transmission due to strains or other causes.

The sliding gear change speed is mounted on Hess-Bright bearings, and gives three speeds forward and one reverse, the control being of the H-slot type.

DRIVE AND REAR AXLE.

The drive is thru two universal joints of special construction. The joint is a combination universal and slip joint at both ends, doing away with the usual small diameter squares for taking care of the longitudinal slip. These universal joints at both ends are fastened to their respective spindles thru hardened taper squares and retained by castellated nuts, differing somewhat from the conventional way of fastening these joints by straight squares or round taper with keys. The driving pinion in the rear axle is integral with its spindle, and is mounted between two Hess-Bright bearings. The differential is mounted in the rear axle in special ball bearings on its hub extension, and the connection to the driving axle is made thru the hardened squares.

The rear wheels are clutch driven, and the load is carried on unusually large Hess-Bright bearings, practically within the load center. The axle being of the semi-floating type, the load is carried on the axle housing, the bearing of the driving axle next to the differential acting as a support in resisting lateral strains.

All parts constituting the right and left halves of the rear axle system are interchangeable. The tri-angular torsion rod which has been a feature in Premier construction for five years is retained.

Two sets of brakes are used, both being applied to the 15x3-inch drums on the rear hubs. The foot brake is pedal operated, and consists of an internal expanding bronze ring with forty-four 1⅛-inch cork inserts compressed in ¾-inch holes.

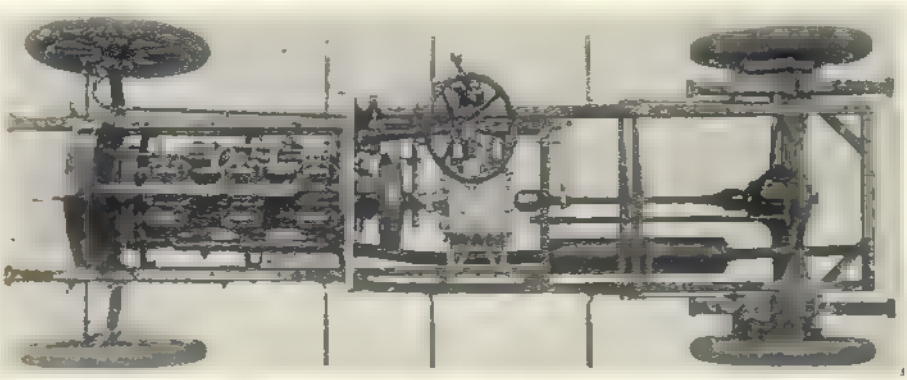


Fig. 2. Plan of Model 45 Premier, showing the frame construction brake equalizers, rear full elliptic springs and the general arrangement of the units.

The external contracting brake is camel-hair lined, and operated by side lever. Provision is made for the external adjustment for wear on both internal and external brakes. Both brakes are equalized thru a prest steel brake beam, sliding in two slots in the side frame members. The emergency brake is inter-connected with the clutch

The usual prest steel frame construction is adhered to and the sub-frame is riveted to the top flange of the main frame, making the forward end of the frame practically box section, and carrying the weight in a straight line section. It is so arranged as to substantially re-inforce the main frame. The lower edge of the sub-frame members is turned inward, and provides a means for fastening a prest steel pan, completely protecting the under side of all mechanism from the radiator support in the front to the cross girt back of the transmission.

1908 Babcock Electrics

The well known line of Babcock electrics made by the Babcock Electric Carriage Co., of Buffalo, N. Y., is offered for 1908 without material change. There are in all five models, known as Model 1 Special, Models 5, 6 and 10, and a Brougham.

CHANGES IN MODELS 5, 6 AND 10.

In Models 5, 6 and 10 there are some features not previously shown. The principal change is in the controller and method of operation. In these models the speed is controlled almost entirely by means of a foot lever. There are five speeds forward and two reverse. After the controller handle has been placed at the desired speed, it is not necessary to again touch it, unless the rate of speed is changed. Once under way the car can be slowed down, allowed to coast, or the countershaft brake applied and the car brought to a stop, all with one movement of the foot lever. There is besides a foot lever, operating brakes that act on the rear wheels. This method of control makes the operation of these models extremely simple, and reduces to a minimum the amount of power lost while changing speed.

BRIEF SPECIFICATIONS

Model 5 is a roadster, intended for long distance. Its makers claim for it the highest speed and greatest mileage capacity of any electric automobile on the market. The range of speed is from 6 to 26 miles an hour. On the third notch, 16 miles per hour, 85 miles it is claimed can be obtained on a single charge, if properly operated. It weighs about 1600 pounds, has a 78-inch wheel base; 32-inch wheels equipt with 3½-inch pneumatic tires. The power is obtained from a 36-cell battery, made by the Babcock Company, distributed half in front under the hood and half in the rear of the body, and the motor is suspended from the chassis under the seat. It has a double chain drive of the latest improved type. The price of this car is $1500.

The Victoria phaeton, Model 6, is a strikingly handsome vehicle, and is particularly adapted for use by women. It is hung low and has continuous mud guards, which make it impossible for the garments of the occupants to get soiled. It is very roomy, but very light in appearance; is capable of high speed and great mileage. It weighs about 1700 pounds, the wheel base, wheels and motor being the same as on Model 5. It is equipt with specially constructed 3½-inch double tube tires. The battery is the same as on Model 5. The upholstering is of the finest quality of broadcloth, and the price is $1700.

A light weight vehicle of coupe type is known as Model 10. It has a very roomy seat, and all the windows can be dropped, thereby making a comfortable vehicle for warm weather. A special arrangement of the steering wheel makes it possible for the operator to enter from either side. It is claimed by the builders that because of its light weight it has greater mileage and speed than any other coupe. The chassis is the same as that of Model 6, and the body is so arranged that it can be removed, and the Model 6 Victoria body put on in its place. It sells for $2100.

The Stanhope Model 1 Special is intended for very large people. This car hangs low, and also has continuous mud guards. It has a wheel steer with tilting mast, making ingress and egress extremely easy. It has a 66-inch wheel base, wheels being 32 inches front, 36 inches rear. Solid tires will be furnished if desired. The power is derived from a 40-cell battery, made by the Babcock Company, giving a radius of 50 miles—65 miles on level roads. This car is capable of climbing a 28 per cent. grade, and sells for $1800.

The Brougham, which is a splendid type of the luxurious town car, is upholstered in French goatskin, and has on the inside all the appurtenances that one using such a vehicle could need for calling and theatres. Five persons can ride inside and two outside, beside the operator. The controller is of special design, and is operated by a handle on the steering mast, under the steering wheel. There are four speeds forward and two reverse. Powerful internal brakes act on the rear hubs, and there is, besides, an electric brake. The operation is similar to that of the clutch lever on a gasoline car. The wheels are of special construction, fitted with standard pneumatic tires, 3½-inch on front, and 4-inch on the rear. The price of this car is $4000.

1908 Welch Cars

The Welch car for 1908 shows very little change in appearance over the 1907 product; in fact, that is the most noticeable thing about it. The bodies have practically the same general lines, but are somewhat more commodious and luxurious. The general finish also shows a decided improvement.

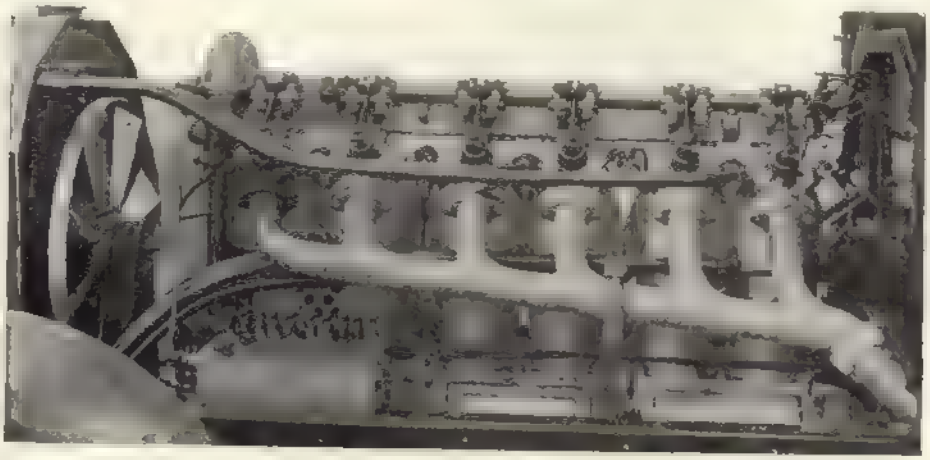


Fig. 1. Left side of 1908 Welch 6-cylinder motor, showing the overhead cam shaft with gear at the rear end and the double sets of plugs in the sides of the cylinder heads between the pairs of cylinders. Note the effective curves of the exhaust manifold and the use of three separate water pipes to and from the radiator, each dual cylinder unit having a separate pipe for its supply and another for the return.

The past year's experience has failed to change to any appreciable extent the Welch constructions, such as hemispherical polished combustion chambers, independent clutch transmission, honeycomb radiator, etc., which are, together with all other important parts, practically the same as for the last four years. Each detail, however, as to workmanship and material, it is claimed, has been brought to such a state of perfection that the standard of efficiency of the car is much higher than ever before. Two entire separate ignition systems are now a regular equipment. They consist of the usual storage battery and coils and the Bosch high tension magneto, each operating on a separate spark plug, and being complete in itself.

The four models offered for 1908 are on two chasses, one being a four and the other a six-cylinder car.

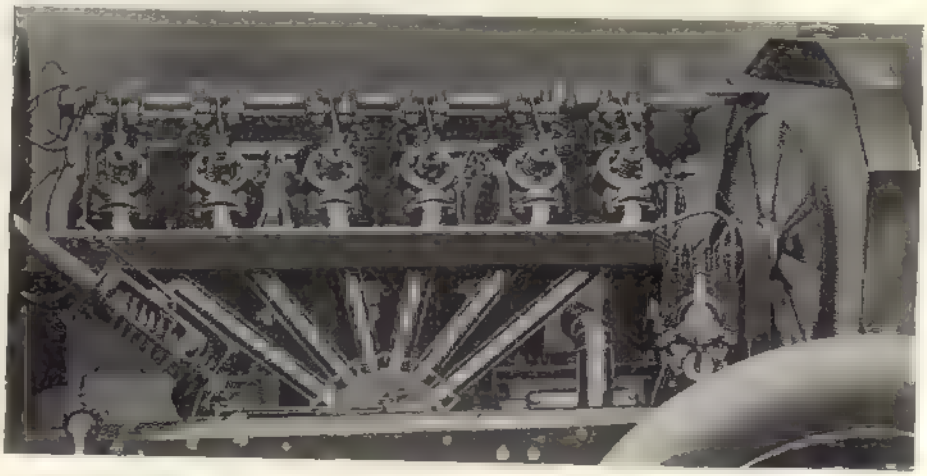


Fig. 2. Inlet side of 1908 Welch motor, showing the peculiar radiating inlet pipes, also the special worm steering gear, the location of the high tension magneto and the neat boxed-in wiring.

Four complete models are offered for 1908 as follows: A 4-cylinder open five-passenger car with extra seats, $4500; same chassis with seven-passenger limou-

sine body, $5500; 6-cylinder chassis with open five-passenger body, $6000, and the same with limousine body, $7000. The smaller chassis sells for $4100, and the 6-cylinder for $5600.

Fig. 3. View showing the method of mounting and driving the magneto on the 1908 Welch, and the supporting arms of the engine which also form cross frame members.

GENERAL CHASSIS SPECIFICATIONS.

The 4-cylinder motor is rated at 50 H. P. The mechanically operated valves and their cages are quickly removable. The 6-cylinder motor is rated at 70 H. P. The engines are of similar units. The crank shafts are of extra heavy chrome nickel steel, and the main bearings are of babbitt. Oiling is by individual force pump with sight feeds, and cooling is by the Welch patent honeycomb radiator, carrying 2½ gallons in the small car and 4 in the larger machine. The change speed gear has three shafts, one in each side of the main shaft, upon which are the individual clutches for the speeds. This change speed has not been materially changed for several years. The gears are always in mesh. The clutches are of the multiple disc type, and run in the oil of the case, giving smooth engagement. Each clutch has 150 square inches of hardened steel against bronze. This change speed also gives a direct drive on the high with the gears idle and two speeds to the rear. There are three forward speeds.

The brakes are inside and outside on the rear hubs. The front axles are one-piece drop forgings. The rear axles are live and of chrome nickel steel. The wheel bases are 129 and 138 inches, and the tires 4½x36 inches on the smaller car and 5x36 on the 6-cylinder machine. The tread is standard in each case.

A reserve gasoline tank containing 6 gallons is used on each car, the total gasoline capacity being 28 gallons. The road clearance of each is 9 inches.

The 1908 White Steamers

During the season of 1908 the White Company, of Cleveland, Ohio, offer two models "K" and "L," which are the successors respectively of last years models "G" and "H." Model "K" is 30 H. P., and "L" is a 20 H. P. machine.

Following the usual custom of the White Company, very few changes have been made with the exception of some slight rearrangements and shifts in the body lines and constructions. However, Model "K" has a longer wheel base than its predecessor, this being 105 as a runabout, 116 as a limousine and landaulet, and 122 inches as a touring car. It is hung lower and has consequently a lower center of gravity, and is easier of access. The Model "L," has a larger generator, the 1907 Model "H," and in both of the new cars a change has been made in the position of the

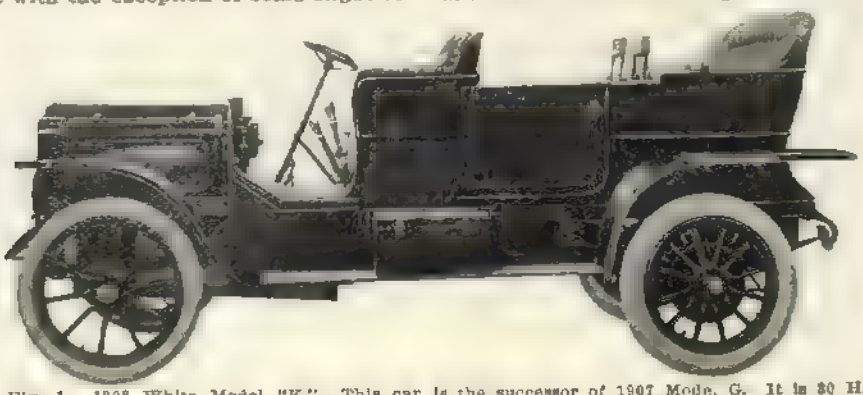


Fig. 1. 1908 White Model "K." This car is the successor of 1907 Mode. G. It is 30 H. P. Its wheel base is longer, being 122 inches and its new straight line body is hung lower. The thermostat is now in an accessible location in the steam line connecting the generator and the engine. A thermometer has also been placed in the steam line and the steam temperature can be read from the drivers seat at any time. High pressure cylinder 3 inches low 6 inches stroke 4½ inches, tires front 36x4, rear 36x5, gasoline capacity 24 gallons, water 17, clearance 10½ inches. The chassis with touring body, $3700, runabout body, $3400, and with limousine body, Pullman seats, $4700.

thermostat. This device which automatically admits water to the generator when the temperature of the steam tends to exceed the normal reading, is now accessibly located in the steam line connecting the generator and the engine. The device is readily adjustable and can be replaced within a few minutes. A thermometer which can be read from the driver's seat is also fitted to the steam line, so as to be at all times an indication to the driver of the steam temperature.

As in previous models the generator is located in the middle of the car is heavily lagged and surrounded by a circular draft space, the products of combustion passing out at the bottom, while the compound engine is under the hood. All speeds from zero to the maximum are obtained by throttle control, the engine being very flexible and can exert greater power at starting than at almost any other time. The generator like the engine has suffered no radical changes in several years. The development which has taken place being along the lines of refining the automatic methods of regulation so that in the 1908 models, it is claimed the pressure and temperature of the steam remain constant whether the car is running fast or slow, coasting or climbing the steepest hill.

The features to which the company call attention are: no "water-level" to maintain, therefore no need of water glass or gage, float, fusible plug or other devices used on ordinary boilers. That the generator tubes do not become encrusted, and that the cars are noiseless, odorless and as easy for the novice as the initiated, to drive.

Model "K," with touring body sells for $3700. The 30 "Steam H. P." engine has a high pressure cylinder of 3 inches, and a low pressure cylinder of 6 inches diameter. The front tires are 36x4, and the rear 36x5 inches. Two brakes are supplied, the hand brake being contracting on the rear wheel drums, and the foot brakes expanding on the same drums. The gasoline capacity is 24 gallons and the water 17. The road clearance is 10½ inches. With landaulet body the car sells for $4600.

The Model "L" cylinders are 3 and 5 inches in diameter, and the engine is rated as 20 "Steam H. P." The stroke is 3½ inches. The front and rear tires are each 34x4. The gasoline capacity is 20, and the water capacity the same as in the larger car, 17 gallons. As a touring car the price is $2500, as a runabout $2400, and with a limousine body $3200.

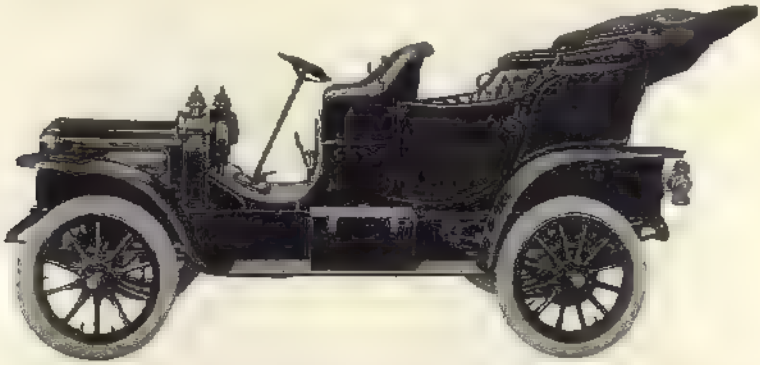


Fig. 2. 1908 White Model "L," 20 H. P. Same general arrangements as the larger model but with 104-inch wheel base, 34x4-inch tires and 20 gallon gasoline tank, road clearance the same, 10½ inches. This chassis with touring body is $2500, with runabout body $2400, and as a limousine $3200.

Haynes' Chicago Branch

Following the great strides made in the automobile industry, the Haynes Automobile Company, of Kokomo, Ind., was recently compelled to secure larger quarters for its Chicago branch under the management of Joseph B. Deibler and accordingly leased the new building at 1702 Michigan avenue for a term of ten years.

The new building is a modern two-story structure having a frontage of 30-feet and a depth of 176-feet. The building has a total floor space of 12,320 square feet, and its cost of construction was $30,000. The front is very attractive, being largely a plate glass and glazed tile construction.

The Packard Motor Car Company announces that after January 1, 1908, Mr. E. Ralph Estep will be located at the home factory, Detroit, Mich., as advertising manager.

A. T. Mollenhour, Mentone, Ind., has commenced to build buggy type motor cars and will soon be ready to fill orders. The Mollenhour car is powered with an opposed type, air-cooled 12 H. P. motor, and is designed to meet popular requirements

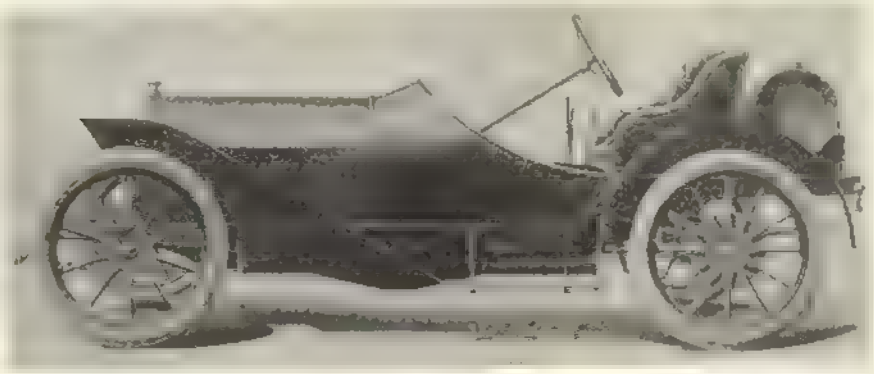
The temporary factory of the Commercial Auto Co., manufacturers of the Hennigin cars, at 1408 W. Fifty-sixth street, Chicago, was burned down on November 25th. Another temporary factory has been secured at Chicago Heights, where they expect to continue operations until their new factory is completed.

1908 Dragon Cars

The Dragon Motor Company, of Philadelphia, will make a distinct departure from the system which it has pursued in the past, for the coming season, by building a well-hung racy roadster of 35 H. P. which will take the place of the well-known Dragon runabout heretofore produced by the Philadelphia factory. A refined edition of the standard touring car of 1907 will also be marketed for the coming season. Its price has been increased $100, being now $2100.00.

The new Dragon product has a wheel base of 96 inches and a clearance of 10½ inches. It will seat two, no rumble seat being supplied, but in its place will be a cylindrical gasoline tank. The entire appearance of the roadster will be that of a comfortable and speedy little car for strength and easy handling. The engine has four cylinders of 4½-inch stroke and the same bore cast in pairs with the valves on one side. The change speed gear is of the progressive type with only two speeds forward in addition to the reverse and is located on the rear axle and mounted on ball bearings. The frame is of drop pattern prest steel and the brakes are metal to metal internal and external on drums on the rear wheels. Thirty-two-inch wheels are used, with ten spokes on the front wheels and twelve on the rear. The body is of prest steel and the hood is prolonged to make a curved dash reaching around to the seats on the side.

The new runabout weighs 1000 pounds and the stock color is red. The wheel base is 96 inches. The ignition is jump spark from storage batteries and lubrication is by a force feed oiler. The steering gear is of the irreversible worm and worm wheel type. The car sells for $1850, and it is claimed under proper conditions will develop at least fifty miles an hour without special gearing.



1908 Dragon Roadster. This new model takes the place of the conventional type of roadster previously marketed. It carries a 4-cylinder, 4½x4½ motor, of 35 H. P., cylinders cast in pairs with valves on one side. A cone clutch is used and a progressive change speed gear with two speeds ahead and one reverse is mounted on ball bearings, and its case is integral with the rear axle housing; wheel base, 96 inches; tires, 32x3½ inches, brakes metal to metal internal and external on the rear hubs. The car has 10½ inches clearance. With gas lamps, tail lamp, horn tools, etc., it sells for $1850.

Standard Seamless Steel Rings

In addition to its well known line of seamless steel tubing, the Standard Welding Co., Cleveland, Ohio, is making a line of seamless steel rings for chucks, gears, blanks, pails, poles, etc. The rings are made from bessemer, open hearth, or crucible steel, copper, brass and bronze stock, rolled and welded by electricity. By means of the electric welding process every particle of steel is joined together, making a perfect uniform joint of solid stock, and therefore, better adapting it for gear work. Special rings can be furnished to order from blue prints and specifications.

Empire Tire Repairing

Empire State Tire Co., 198-200 Terrace street, Buffalo, N. Y., in addition to manufacturing the Greenwald extensible tread tires, tire protectors, and reinforced inner tubes, is also doing a general tire repair business and soliciting work from any point. The Greenwald tires and protectors were described in the July, 1907, number of the Journal, page 136.

The Empire Company also plan and superintend the instalation of complete tire repair plants for garages and repair shops. Mr. Lemon Greenwald, formerly the head of The Akron Pneumatic Tire Co., and previously superintendent of the factory and branch repair departments of the B. F. Goodrich Co., is superintendent of the Empire State Tire Co.

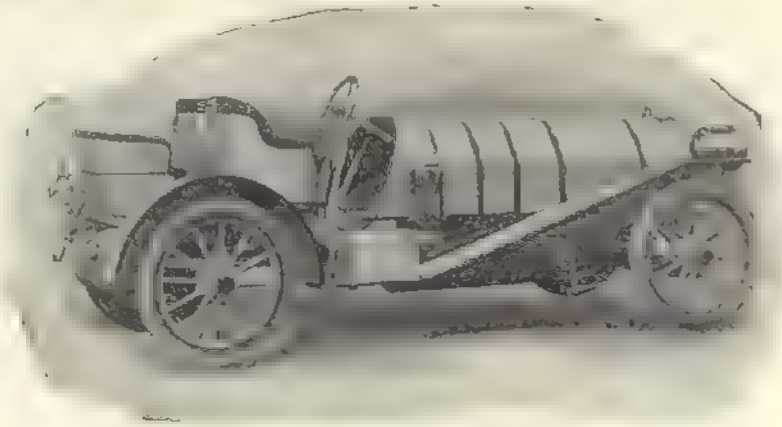
This company's vulcanizers will be described and illustrated in an early issue of the Journal.

The Maynard Steel Foundry Co., 710-716 Reed street, Milwaukee, Wis., is turning out small and medium weight crucible steel castings for use in automobiles and other manufacturing purposes. This concern endeavors to make good castings and prompt deliveries.

Gearless Greyhound

The Thoroughbred Roadster

A car that creates a genuine sensation wherever shown. It fairly bristles with original features and possesses the most distinctive lines, combining speed, power and style to the last degree.



1908 MODEL

Speed, 75 Miles *Price, $4000*

SPECIFICATIONS:

SEATS Three
WHEEL BASE—126 in. **GAUGE**—56 in.
TIRES—Front 36 in. x 4 in.
TIRES—Rear 36 in. x 4 in.
BRAKES—4 on rear wheels. 2 internal expanding. 2 external contracting. 2 band brakes on transmission operated by foot pedals.
SPRINGS—39 in. front, 50 in. rear. Semi-elliptical.
HORSE-POWER—75 at 1350 R. P. M.
BORE—4¼ in **STROKE**—5½ in.
CYLINDERS—6-4 cycle.
VALVE ARRANGEMENT—Opposite in ports.
COOLING—Water cooled. Honeycomb radiator.
IGNITION—Jump Spark. Two sets of plugs.
CURRENT SUPPLY—Bosch high tension magneto. Storage Battery reserve.
LUBRICATION—Delaunay Belleville System. Absolutely positive at all times.
CLUTCH Internal expanding ring.
CHANGE GEAR—Gearless Transmission.
SPEEDS—2 forward and reverse.
DRIVE—Direct on high speeds. Frictional on low and reverse.
BEARINGS USED—Crankshaft, Parson's white brass. Wheels Front, Balls Wheels Rear, Hyatt Rollers. Transmission, Balls.
SPECIAL STEELS USED—Nickel steel in rear axles and propeller shaft.

WE MAKE OTHERS, TOO.

WRITE FOR CATALOG, IT TELLS MORE

Gearless Transmission Co. (Motor Car Dept.)

297 Plymouth Avenue, Rochester, N. Y.

"THE OLD RELIABLE"

DIETZ MOTOR LAMPS

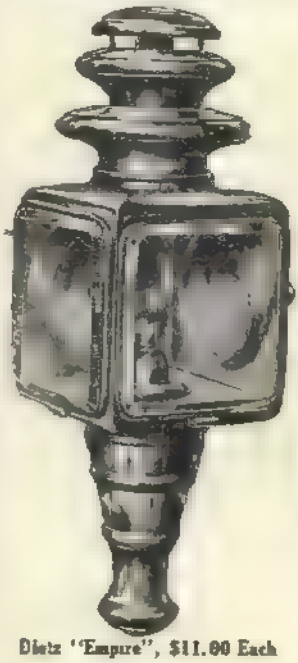
None "Just as Good"

The Pioneers of the "Cold Blast" Motor Lamp

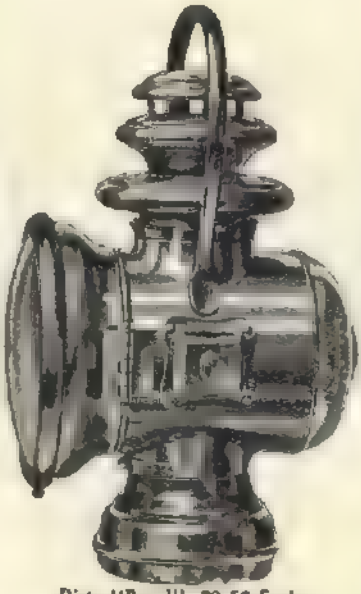
DIETZ Motor Lamps

1908 MODELS

Heavy Materials Fine Lines Handsome Finish



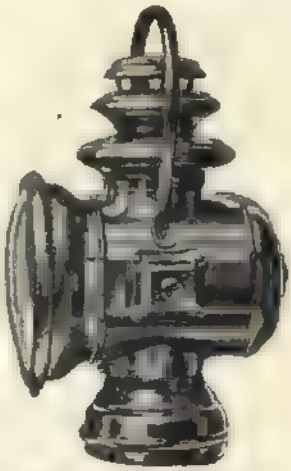
Dietz "Empire", $11.00 Each



Dietz "Royal", $9.50 Each

Dietz "Empire Jr", $9.00 Each

Dietz "Sterling Jr", $7.00 Each



Dietz "Royal Jr", $7.00 Each

Dietz "Sterling", $9.00 Each

R. E. DIETZ COMPANY

Pioneers and Leaders (Established 1840)
Largest Makers of Lanterns in the World

Send for 1908 Catalog
The Trade Protected

60 Laight St., New York City

All "DIETZ" Oil Lamps are Adaptable to Acetylene

DIETZ Headlights

1908 MODELS

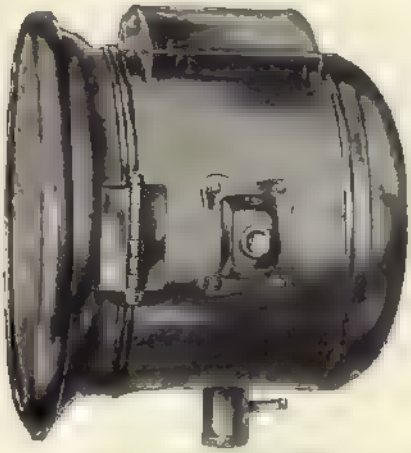
Large Candle Power, Economical, Easily Cleaned

"THE OLD RELIABLE"

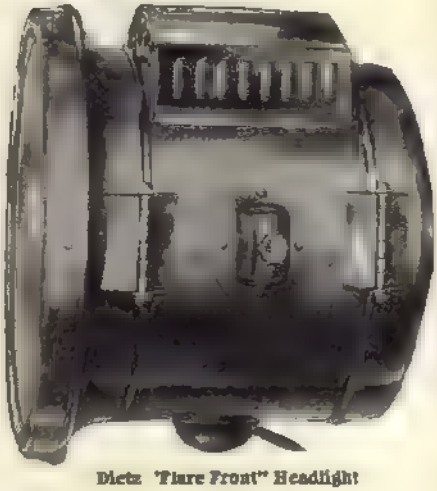
DIETZ MOTOR LAMPS

None "Just as Good"

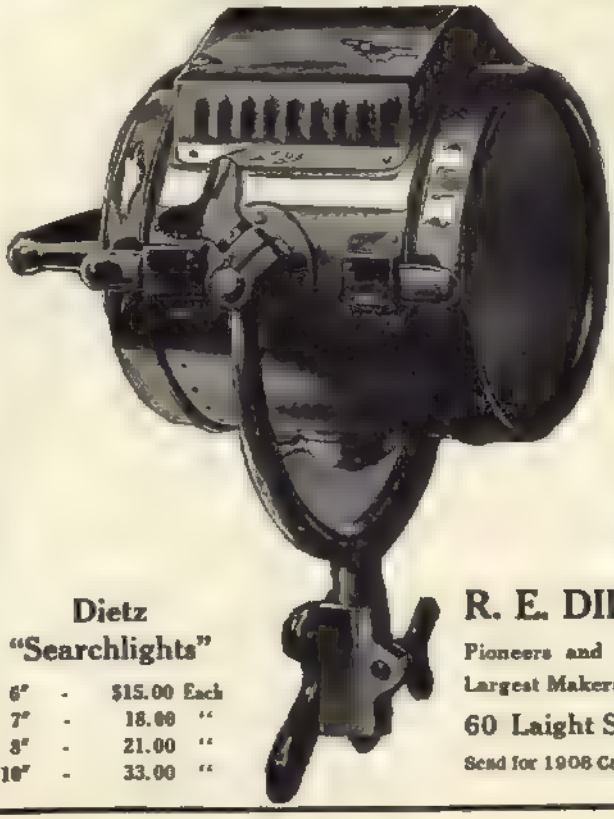
DIETZ HEADLIGHTS



Dietz "Triumph" Headlight



Dietz "Flare Front" Headlight



Dietz "Triumph" Headlights

6"	- -	$8.00 Each
7"	- -	9.00 "
8"	- -	11.00 "

Dietz "Flare Front" Headlights

6"	- -	$9 00 Each
7"	- -	11.00 "
8"	- -	15.00 "
10"	- -	25.00 "

DIETZ

Headlights and Searchlights are in perfect focus and candle power ranges from 400 to 1200, according to size.

Dietz "Searchlights"

6"	-	$15.00 Each
7"	-	18.00 "
8"	-	21.00 "
10"	-	33.00 "

R. E. DIETZ COMPANY

Pioneers and Leaders (Established 1840)

Largest Makers of Lanterns in the World

60 Laight St., NEW YORK CITY

Send for 1908 Catalog — The Trade Protected

The New Maxim-Goodridge Electric Victoria-Phaeton

As has been well known in the trade for some months, Mr. Hiram Percy Maxim and Mr. T. W. Goodridge have been engaged in the production of a new electric car, which was to have entirely new features. This car has just made its appearance, and in several details it is a striking departure from conventional electric carriage designs.

The first thing which attracts one's attention in the construction is the surprising freedom from underneath mechanism. This effect is the result of using a worm and wheel drive in place of the customary pinion and gear and sprocket and chain, and in this respect the car marks a new departure in electric vehicles. All electrics on the market to-day use either pinion and gear drive, or a combination of gears and chains, which makes the reduction double.

WORM DRIVE.

Much has been written lately upon the great advantages which the worm drive possesses for the transmission of a motor car, but the Maxim-Goodridge vehicle seems to be the first electric to break through the conventions and adopt it. The mounting of the worm drive is interesting, as will be seen from Fig. 2. The electric motor has its armature shaft prolonged and the worm mounted directly upon it. The worm wheel is supported in a separate housing which is divided vertically, and attached directly to the end of the motor. The stub shafts of the differential project through this housing, as shown. This drive is claimed to be the acme of simplicity, as the entire gear reduction of 10 to 1 is accomplished in one small housing, which is virtually a part of the motor. All chains, chain housings, strut rods, adjustments, gears, pinions and gear housings are at once avoided, and the entire transmission made enclosed, self-contained and absolutely silent.

The great objection in the minds of constructors to the worm and worm wheel drive has heretofore been the question of loss, due to the working action being entirely a sliding one instead of approximately a rolling one, as in the case of gears. The irreversible feature of the common worm has also been a hindrance to its favorable consideration. With the ordinary type of worm and wheel these objections unquestionably hold, and the drive would not be at all practical on a motor car, but the makers of this car claim that all these objections have been entirely overcome, as shown by the working of the car. It is claimed the car moves so easily that it will start of itself under the action of even a slight wind or down grade unless one of the two brakes are set

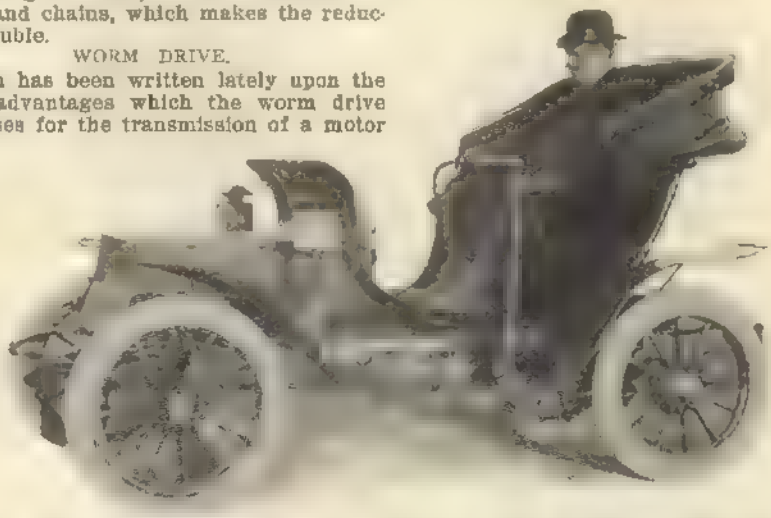


Fig. 1. The New Maxim-Goodridge Electric. Designer, H. P. Maxim driving. This new vehicle has many distinctive constructional features. The control is at the left side. The entire rear axle construction is unique, a worm drive being employed. The under side of the car is noticeably free from mechanism and the entire power plant and batteries are carried on springs, there being no dead weight on the axles. The 30 cells of 11 P. V. Exide forming the battery are all carried under the hood at the front in a similar manner to the power plant of a gasoline car. Wheel base 84 inches, maximum speed 18 miles per hour, price $1800.00

In driving, it is said, the tests of power consumption give positive proof of the low point to which the losses have been reduced, and this low friction means slow wear, and on this point the makers state that there is the best reason to believe that the life of the worm and wheel will be indefinite. It is completely housed in from dust and mud, runs continuously in oil, and requires absolutely no adjustment. The worm is made of steel and hardened, and the worm shaft and motor armature shaft run on D. W. F. ball bearings.

MOUNTING OF TRANSMISSION

Another feature in the car of no less originality than the adoption of the worm drive, is the mounting of the motor and the transmission. These are carried on the chassis frame. They hang just so that the

differential stubs, already referred to, stand in approximate alignment with the centres of the rear wheel hubs. Two universal jointed driving shafts then connect the differential stubs with the rear wheel hubs.

Fig. 2. Rear view of Maxim-Goodridge electric showing the rear axle construction. The weight of the carriage is entirely supported by the dropped solid axle and not by the driving mechanism. The transmission is by worm and wheel, driving through universal joint shafts to the wheels. The driving mechanism is supported on the carriage springs. Electric side and tail lights are used. For special construction see text.

Up-and-down motion of the body is allowed for by the universal joints. For average loads these shafts are, approximately, in a straight line, and only on jounces and recoils is there any motion in the joints. The rear axle is offset to allow for the

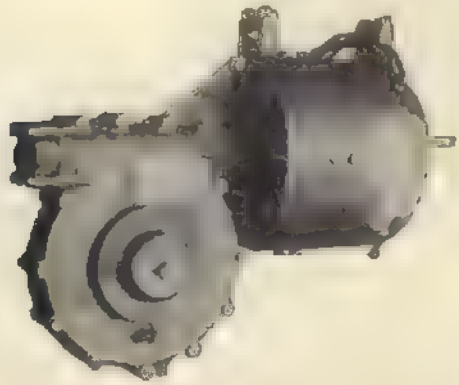


Fig. 3. The Motor and transmission of the Maxim-Goodridge Electric forming a compact unit.

clearing of the universal joints, and except for this offset is an ordinary plain carriage axle. The rear wheels run on this axle, and driving dogs engage at the outer ends of the hubs, in the same manner as in conventional floating-axle design.

This carrying of the weight on the springs, instead of carrying it rigid and "dead" on the rear axle, makes the riding of the car very much better, and also permits the use of solid rubber tires instead of pneumatics. In this new car it would seem that the chances of success with solid tires would be greatly augmented. In riding in the car equipt with solid rubber tires the only difference noticed is that a slight

Fig. 4. Control levers of Maxim and Goodridge electric car, showing the controller handle mounted on the steering post below the steering wheel in which position it does not take up any seat room as when placed at the side of the seat. Steering is from the left side.

noise is heard when crossing street car tracks and similar sharp bumps.

The riding qualities, however, are not at all different from what they would be with pneumatics, and aside from hearing, it is doubtful if one could tell what kind of tires were fitted. This is the result of the long springs, and the loading of all the weight where it is supported by the springs.

Another of the striking features of this unique vehicle is the way the batteries are carried. There are 30 cells of 11PV Exide, and all of them are placed under a front bonnet, the same as the power plant in a gasoline machine. The makers do not claim that this arrangement is followed because it is a feature of approved gasoline car design, but because it is the only way in which the weight can be carried equally upon both front and rear axles. In most types of electric cars, where batteries are carried at each end, the rear tires are required to carry some 60 per cent. of the total weight, and at the same time do all the driving. In the Maxim-Goodridge car the weight is just 35 lbs. more on the rear wheels when two passengers are in the seat, than is the weight on the front wheels. This is claimed to have an important effect on the softness of riding, and materially assists the tire problem

CONTROL AND BRAKES

The control of the car is also slightly original. Instead of the conventional lever

projecting up through the side of the seat cushion, and using up, incidentally, some six inches of valuable space, the controller handle is mounted upon the steering post just below the steering lever, as shown in the cut. This handle is stated to be more convenient to operate than the conventional style side lever, and entirely avoids the mutilation of the cushion and the occasional dangerous catching of garments.

There are two brakes fitted, both controlled by foot levers projecting upwards through the floor. One brake operates upon the rear hubs and one upon the motor shaft. The wheel base is especially long, being 84 inches, which materially adds to the ease of riding. The diameter of all four wheels is 32 inches, and the tires used, in either solid or pneumatic, is 2½ inches.

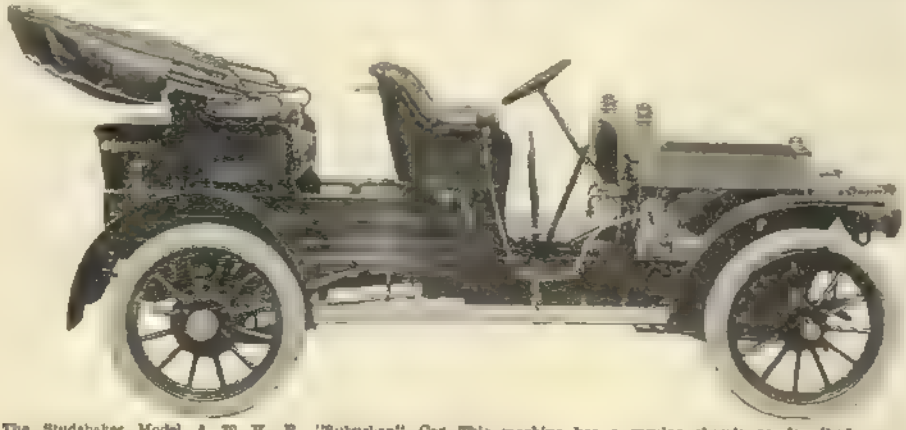
The motor is a General Electric, and the control is by means of the new style, uninterrupted torque, multiple-series controller, giving five speeds ahead and three reverse. The maximum speed is 18 miles per hour. The mileage on one charge of the battery, with either solid or pneumatic tires, is fifty on ordinary road surfaces, and, of course, much more on good city pavement. The weight of the car is 2,100 lbs. with the battery mentioned, and correspondingly less with smaller battery and simpler body. The chassis is entirely self-contained, and any type of body is supplied for especial purposes, although the standard is the Victoria-Phaeton shown in the illustration. The price is $1,800.00.

Japan is fast catching up to the Western world in civilization. In regard to the recognition of the supremacy of the automobile in traffic; among the regulations recently issued by the police department of Tokio appears the following: "Automobiles shall have precedence in the street to fire engines, post carriages and military, funeral or the processions of the people."

The Studebaker "Suburban"

There is quite a demand at the present time for a car that will be a happy medium between the runabout and the touring car, combining the smartness and the light weight of the former with the extra seating capacity of the latter.

To meet this demand the Studebaker Company has introduced its "Suburban." This is a thirty-horse power car with a chassis identical with that of Models A and H, but having seating capacity for four persons. The body of the car is considerably shorter than the body of a regular touring car of the same horse power, and the car presents an exceedingly smart appearance as shown by the accompanying photograph.



The Studebaker Model A 30 H. P. "Suburban" Car. This machine has a regular chassis as described on page 151, March, 1908, issue of the Journal, but the body is special.

The body is peculiar for an automobile, as it is an adaptation of the type of body used on light wagons and heavy road buggies. The rear seat is removable and carries a top. Under it is a very large carrying space and back of it a luggage hamper is fitted. The rig presents a very neat appearance.

The receivers' report covering their transactions for the Pope Mfg. Co. during the month of March shows a big increase in the cash balance. The total receipts for the month amounted to $179,614.49, which includes $166,756 58 from sales made by receivers. The cash disbursements for the month amounted to $114,429.11.

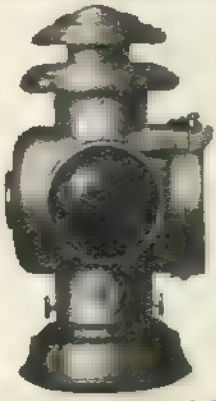
The decision made by Judge Buffington in the lower court in favor of the defendants in the case of the G & J Tire Co. vs. the Pennsylvania Rubber Co., which involved the G & J patents on the clincher type of tire, was upheld by the United States Circuit Court of Appeals for the Third Circuit. Judge Buffington's decision affected four patents, Nos. 454,115, 558,956, 466,565 and 523,314, none of which he ruled had been infringed.

SOLAR LAMPS

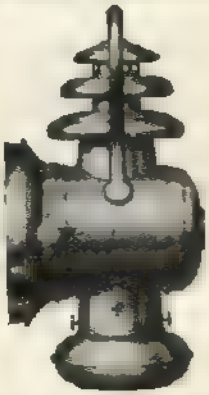
I A Special Short Focus Mangin Mirror made by Bausch & Lomb. This mirror is made exclusively for us.

II Headlights assembled by interior screws which permit a perfectly smooth exterior surface are in construction exclusively SOLAR.

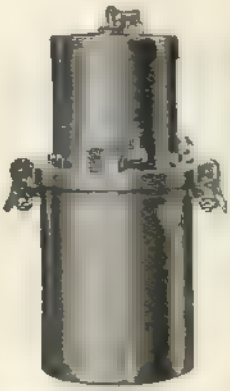
Square Oil Side Lamp, Model 834



Oil Tail Lamp, Model 805



Side Oil Lamp, Model 824A



Generators, 711-712-713

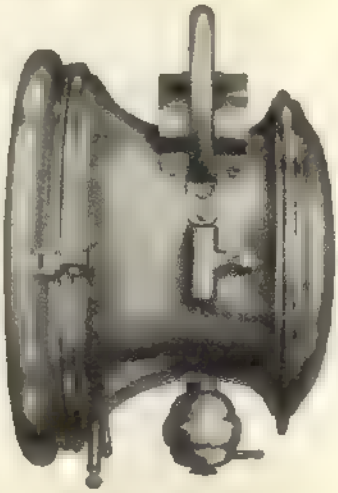
Badger Brass Mfg. Company

AS USUAL

FOR 1908

III A New Black Finish with a metallic lustre, impervious to heat and moisture, eliminating the care of keeping brass lamps bright, is applied exclusively by us.

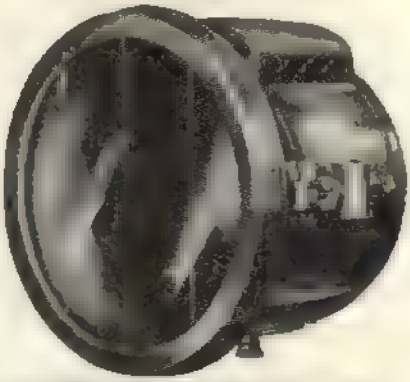
IV The Besnard System of Light Projection and Eclipsing. We have United States Patent Right exclusively.



Headlight, 898-887

SOLAR GAS GENERATORS

embody the ONLY CORRECT PRINCIPLE of gas generation (wick feed) making flooding impossible. They are made round so as to enable each part to be drawn from one piece of heavy sheet brass (not four pieces soldered together). This absolutely removes the possibility of leakage and produces a steady supply of never failing gas.



Headlight, 856A-857A-858A-859A

For other features see our 1908 Booklet No. 8

Kenosha, Wis., and New York City

SHOW THE WAY

THE HOL-TAN CO. NEW YORK CITY
THE
HOL-TAN
CAR
MFG. BY MOON MOTOR CAR CO. ST. LOUIS MO.

1908 FEATURES

1—Simplicity of construction and accessibility to all parts—the first requisite toward chassis perfection.

2—Valves in the cylinder head have been lately adopted by most successful designers, as all valve action can be mechanically attained by the simplifying use of one half-time shaft.

3—Ignition by Bosch high tension magneto is the most approved ignition system now in general use.

4—The selective speed change gear system has stood the test of years and is still considered the most effective system. Four speeds and reverse.

5—The drop frame permitting the use of full elliptic spring suspension over rear axle and low gravity center.

6—Absolute equalization of brake tension.

7—Fan in the flywheel eliminating the necessity of belt or gear driven fan back of radiator.

8—Cellular radiator. Mounted well back of front axle.

9—Multiple disc clutch. 53 members, steel vs. steel.

10—Full floating type rear axle and direct or bevel gear drive.

A few desirable agencies still open.

FIAT Parts

We carry in hand a complete stock of FIAT parts and can supply same promptly.

THE HOL-TAN CO.

244-6-8-50 49th St., West of Broadway :: NEW YORK

The Corbin 1908 Cars

HUGH DOLNAR.

The Corbin Motor Vehicle Corporation was organized in 1903, to exploit certain patented inventions in gas engine cylinder-cooling as applied to motor-car driving, and sold the first car driven by an air-cooled motor made under these patents in 1904.

The Corbin Corporation made and sold a considerable number of cars driven by this particular type of air-cooled motor in 1904, 1905, 1906 and 1907, never applying motors of any other type previously to 1907. These Corbin patented air-cooled motors ran perfectly well, never in any single instance failing to work because of air-cooling, but because of the combined opposition of the selling agents of cars driven by water-cooled motors. The Corbin Corporation continually lost sales, and therefore decided to meet the advocates of water cooling on their own ground, and showed one model driven by a water-cooled motor at the 1907, November Madison Square Garden exhibition, New York City.

For 1908 the Corbin Corporation will offer three models of cars, a 5-passenger touring car, a 4-passenger runabout and a 2-passenger roadster. All of these 1908 Corbin car models will use the same chassis fitted with either an air-cooled or water-cooled motor as the purchaser may prefer.

The prices for the air-cooled motor-driven models will be $150 more than for the same cars driven by water-cooled motors, everything but the motor the same thruout.

The 1908 models are as follows: A 30 H. P., 5-passenger touring car with 108-inch wheel base, 56-inch gage, and tires

Fig. 1. The Corbin 30 H. P. 5-passenger touring cars. Wheel base 108 inches. Gage 56 inches. [illegible] 34x[illegible] inches front, 34x4 inches rear. Motor four vertical cylinders, 4-cycle, water-[illegible] as [illegible]ed, 4½x4¾ inches, [illegible] H. P., A. L. A. M. rating. Cone clutch, selective sliding gear, 3 forward speeds and a [illegible] gear to divided rear axles. Weight 2200 pounds. Prices, air-cooled, $265[illegible] $[illegible] including 5 lamps, mats, horn and tools, ready f[illegible] All motors are fitted to take two sets of jump-spark plugs with dry cells and storage [illegible] 1-coil box on the front board. Bosch magneto and [illegible] $200 extra.

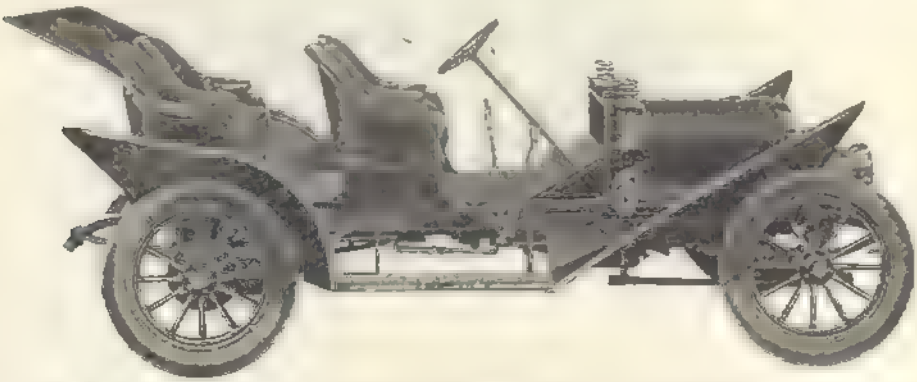


Fig. 2. Corbin 1908, 30 H. P. Runabout. Same chassis and equipment specifications as Fig. 1. Price, air-cooled, $2650, water-cooled, $[illegible]00. Complete double ignition system, batteries and Bosch magneto, $200 extra.

34x3½ inches in front and 34x4 inches in the rear. The motor is air or water-cooled as preferred 4½x4¼ inches, developing by the A. L. A. M., rating 32.4 H. P. This car weighs 2200 pounds, and sells for

Fig. 3. Corbin 1908 30 H. P. Roadster, to seat two passengers only. Same chassis and equipment specifications as Fig. 1. Price air-cooled, $2650; water-cooled, $2500. Complete double ignition system, batteries and Bosch magneto $200 extra.

$2650, with an air-cooled engine, and $2500 if water-cooled. The cape top is $150 extra.

All motors are fitted to take two sets of jump-spark plugs with dry cells and

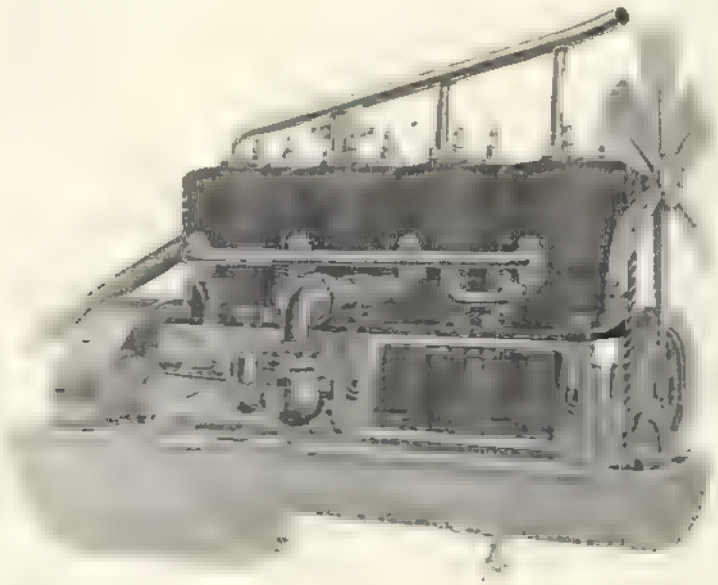


Fig. 4. Right side of the 1908 water-cooled Corbin motor. The crank case, lubrication and ignition systems are the same for both the air and water-cooled motors. A feature of this motor is the steel-tube exhaust pipe, branch pipes molded to the main pipe. The intake pipe is copper wound is below the exhaust pipe and therefore charge is not unduly heated and expanded before entering the cylinder. The cylinders are 4½x4¼, rated at 32.4 H. P. by the A. L. A. M. formula.

storage battery, using a 4-coil box on the dash. A Bosch magneto and complete double ignition system will be fitted for $200 extra.

Upon the same chassis and selling for the same money a runabout body is fitted, and also a roadster body seating two.

In Fig. 4-5, the Corbin 1908 water-cooled motor is shown. The Corbin 1907 motors were air-cooled only, cylinders 4¼x4¼ inches. The 1908 cylinders are 4½x4¼ inches, same dimensions for both air-cooling and water-cooling. The power of the air-cooled motors is rated the same as that of the water-cooled. Fig. 4 shows the right side of the 1908 water-cooled motor. The motor-base, the oil basin, the lubrication and the ignition systems are the same for both the air-cooled and the water-cooled motors. The valves and valve

stems are integral steel forgings, valve faces 45 degree angle

In the air-cooled motor the valves are in cages in the cylinder head, intake valve worked directly from the cam shaft, while the exhaust valve is worked thru a push rod and overhead beam. The air-cooled ports are 1 7-16 diameter. In the water-cooled motor, shown in Fig. 4 and 5, the ports are 1 9-16 diameter

LUBRICATION

The lubrication for both motors is the same, two splash-pools, separated by one, narrow, splash-fed oil-pool which is constantly filled by the splash and gives flooded lubrication to the middle one of the five crank shaft bearings thru underneath oil holes. Of the five crank shaft bearings, the two end bearings are on annular ball bearings, while the three intermediate bearings are in plain boxes, oiled by independent leads from the three sight feed box placed on the inside of the front board. The lubricating oil is poured into the lubricating oil annular-tank seen at the left end of the oil basin in Fig. 4, and at the right in Fig. 5. From this oil-tank lubricating oil is forced past a screw-regulated opening by-pass to the sight-feeds by a 2-pinion pump, gear-driven from the cam shaft thru light flat-spring drivers, which will yield if the pump offers undue resistance. The two-pinion water-circulating pump is driven in the same manner thru flat-spring drivers, so that in case either the oil or water pump sticks from any cause, the spring drivers will yield.

Lubricating oil goes from the three sights to the two crank shaft bearings next to the ball bearings and the third oil-lead feeds a horizontal oil pipe which communicates with a circumferential oil groove in each cylinder, this oil groove being always covered by the piston. The splash pits are supplied by drippings from the crank shaft journals.

Access to the crank-box is had thru large hand holes, with oil-tight covers which are secured with a long bar held in slots at the ends and fitted with one hand-screw in the middle.

The valve action, see Fig. 5, is from a single cam shaft, cams applied, pin and key retention, with pivoted horizontal levers, no rollers, rounded lever-ends, hardened, resting directly on the cams, and the valve lifters resting directly on top of the lever ends over the cams. The top ends of these lifters are fitted with spring-plungers, flanged on top to give about 1-64th gap before the plunger flange closes on the lifter top. There is no length adjustment for the valve stems. The spring plungers make the valve action perfectly silent and the absence of cam-rollers lightens the cam-moved mass materially, and so is conducive to durability

A notable feature of this motor is the steel-tube exhaust pipe, branch pipes welded to main pipe, while the mixture pipe is of copper. This very neat arrangement gives access to the valve springs, and by placing the hot exhaust pipe over

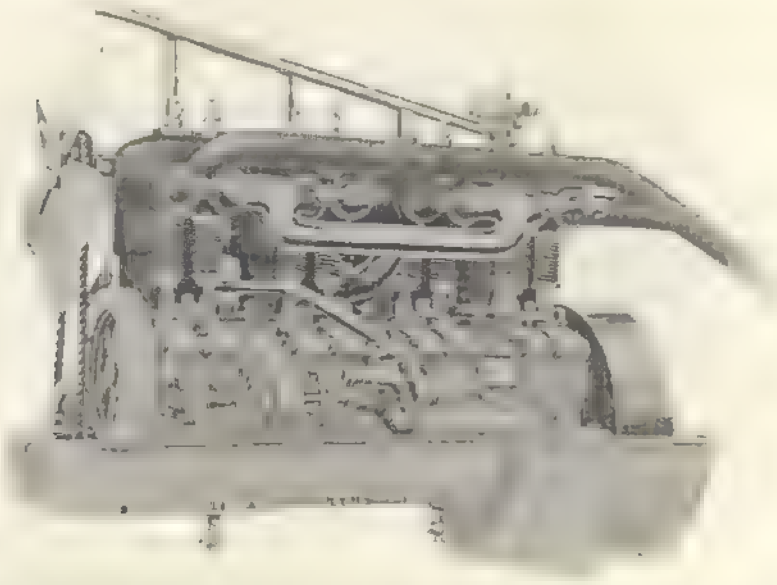


Fig. 5. [illegible] The valve action is from a single cam shaft [illegible] pivoted horizontal levers, no rollers [illegible] hardened and resting directly on the cams. The valve lifters rest directly on top of the lever ends over the cams. Spring plungers are used [illegible] ends of the [illegible] The cam shaft and [illegible] are of [illegible] and the intermediate bearings are plain. The special [illegible] system is described in the text

the mixture pipe avoids the heating and rarefying of the charge which must result from placing the exhaust pipe in the usual position, directly under the charge intake piping.

The fan is rope driven, and has its bearing on a spring-pulled bell-crank, so as to give a constant belt-tension automatically maintained; this wholly obviates fan-belt troubles.

ON THE ROAD

A short ride, four miles, from New Britain to Berlin Junction, Friday, November 15, showed the Corbin 1908 water-cooled motor to be a very smart engine, absolutely silent and prompt in response to the throttle. This Corbin water-cooled car is fast, doing 55 miles on a fair road, is a strong hill-climber and picks up speed promptly. The springs are easy, and this short rush in a new car, just ready for shipment, was a real pleasure. The valve motion, owing to the action of the spring plungers in the top ends of the valve-lifters, is perfectly silent and the car made no noise at all that the observer could detect.

1908 Toledo Models

The Pope Motor Car Co., of Toledo, Ohio, announces its models for 1908 and also that the factory is able to make early deliveries. Two models, Type XVI and XVII, are offered. These have the same general chassis specifications with the exception of wheel-base. Type XVI being 115 inches, while XVII is 126 inches. The smaller car continues the Pope-Toledo style of symmetrical body curves while the XVII is of the straight line type of body. Type XVIII a 50 H. P. touring runabout, is also offered on the same chassis.

1908 IMPROVEMENTS.

One of the special features is the use of two separate systems of ignition, using two sets of spark-plugs, the wiring being such that practically every chance for short circuiting has been avoided. An increased motor capacity has been arranged and all the bearings and wearing parts have been increased in size. There are also improvements in the clutch and transmission. The use of all steel frame, the liberal use of chrome nickel and other alloy steels, the overhead engine

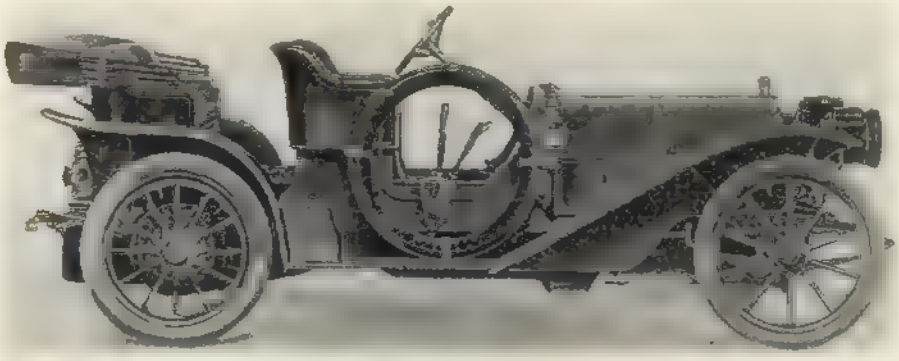


Fig. 1. 1908 Type XVIII Pope Toledo Touring Runabout. 50 H. P., 36-inch wheels, double ignition system with separate spark plugs. Double side chain drive, pan under entire car.

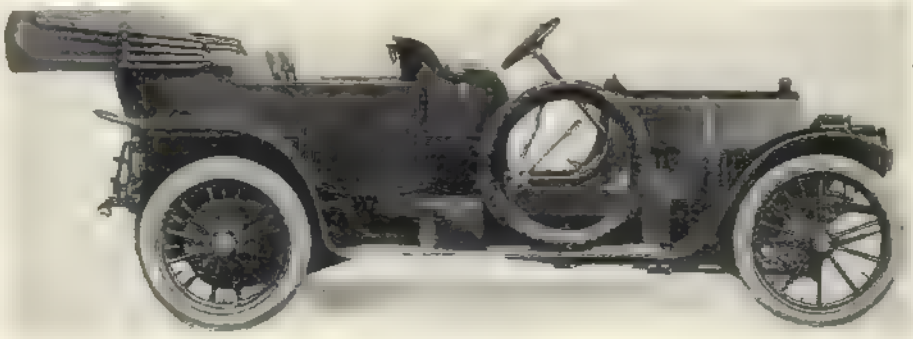


Fig. 2. 1908 Type XVII Pope Toledo Touring Car. 60 H. P. motor, 4 cylinders water-cooled and copper jacketed with cylinder heads integral. Wheel base 126. New straight line type of body. No brass parts, fittings handled by occupants are covered with fine seal leather.

The 1908 Cornish Friedberg Cars

HUGH DOLNAR.

For 1908 the Cornish-Friedberg Company, No. 1233 Michigan Ave., Chicago, Ill., U. S. A., offers two models, a 5 passenger touring car and a 3 or 4 seat roadster, same chassis for either body model, entirely new chassis design, price for the 5 passenger touring car or the three seat roadster, $2250.00, and for the 4 seat roadster $2265.00. The 1908 C-F motor is 4 cylinders, 4 cycle, water-cooled, 4½ x 5¼, 35 B. H. P. at 1000 R. P. M

bearings with a bevel balance gear. The springs are half elliptics front and rear, with a special, short top-leaf arrangement to check bouncing, an original C-F feature said to wholly prevent tossing on rough roads. The chassis frame, prest steel, 4 ins. greatest depth, is by A. O. Smith. The motor and gear-box are carried on a sub-frame, with Blood Bros. universal joints from the line shaft to the bevel pinion shaft.

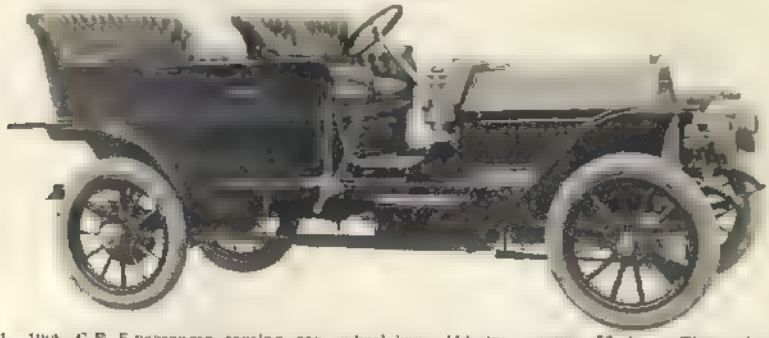


Fig. 1. 1908 C-F 5 passenger touring car, wheel base 114 ins., gauge 56 ins. Tires all 34x4 ins. Motor four cylinders, vertical 4-cycle, water-cooled 4½x5¼, 35 B. H. P. at 1000 R. P. M. Multiple disk clutch, fabric lined bronze with cork inserts, rolling gear, three speeds forward and one reverse with bevel gear differential, rear axles, all car ball bearings, line and side shafts on ball bearings, bevel balance gear. Weight 2400 lbs. Price $2250.00, including 5 lamps, mats, horn and tools all ready for the road. Cape top, lined $100 extra. Cape top, lined, $125 extra.

These C-F 19 3 models are very moderately priced, well built, and present a fine appearance, both the touring and roadster bodies showing straight line effects, while the roadster front board is deeply cowled, with permanent side enclosures of the foot board. The standard C-F colors are a red chassis with maroon touring body and a grey roadster body.

The motor is by the Milwaukee Motor Company, which has established an excellent reputation and is supplying a thoroly reliable line of 4 cycle water-cooled engines. The water circulation is by a two pinion pump. The lubrication is by a plunger pump in an oil well, pump eccentric driven from the cam shaft, with 4 oil leads, unobstructed, from the oil pump

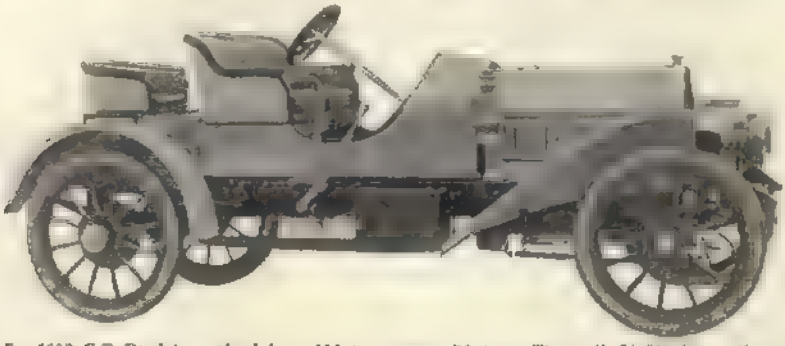


Fig. 2. 1908 C-F Roadster, wheel base 114 ins. gauge 56 ins. Tires all 34x3½ ins., otherwise same chassis specifications as Fig. 1. This C-F Roadster is fitted with seats for three or four persons, weight about 2200 pounds. Price, 3 seats, $2250.00; with seats for four, $2265.00, including 5 lamps, mats, horn and tools.

NOTABLE FEATURES.

The 1908 C-F chassis has a long wheel base and good proportions thruout and the assembling of "standard," that is to say, thoroly tried out and generally pronounced good, components, has been very carefully considered.

The axles are by Garford, adjustable ball-

to the 3 crank shaft bearings, one lead to each end bearing and two oil leads to the middle bearing. The oil basin is divided into four oil pits, supplied by drainage from the oil pump—supplied, crank-shaft bearings. The oil well, lower than the oil basin and integral therewith, is long and has openings which are placed at

such height as to correctly regulate the splash pool depth. The circulation of oil by the oil pump is rapid and, as no oil can escape, this lubrication system is economical. The oil well has a low bevel settling basin with a drain cock which permits heavy dirt to be removed from the oil. The

Fig. 3. 1908 C-F chassis, right side elevation. The deeply hooded front board is an aluminum casting. The construction of this front board is well shown in Figs 5 and 6.

construction of the motor is too well known to need detailed description here. The motors have proved themselves to be durable, powerful for their weight and strong on throttled charges.

The ignition is jump spark plugs, a commutator with a wire brush for leaning the contacts in front of the roller which distributes the current, four coils in a box on the front board and a storage battery, with dry cells in reserve.

The clutch is five disks, three plain grey iron, keyed to the line-shaft, and two of bronze with cork inserts fixed to turn with the fly wheel. These 5 disks are pinched together by a sliding collar and four bell-cranks linkage, temper-screws with check nuts in the bell crank free-ends enabling the clutch to be adjusted. The bushed clutch hub to form the forward line crank shaft rear end enters the bronze shaft steadiment. The sliding gear, selective, is by Warner, and has both the line and side shafts on Hess-Bright ball bearings. The propeller shaft has Blood Bros. universal joints at each end.

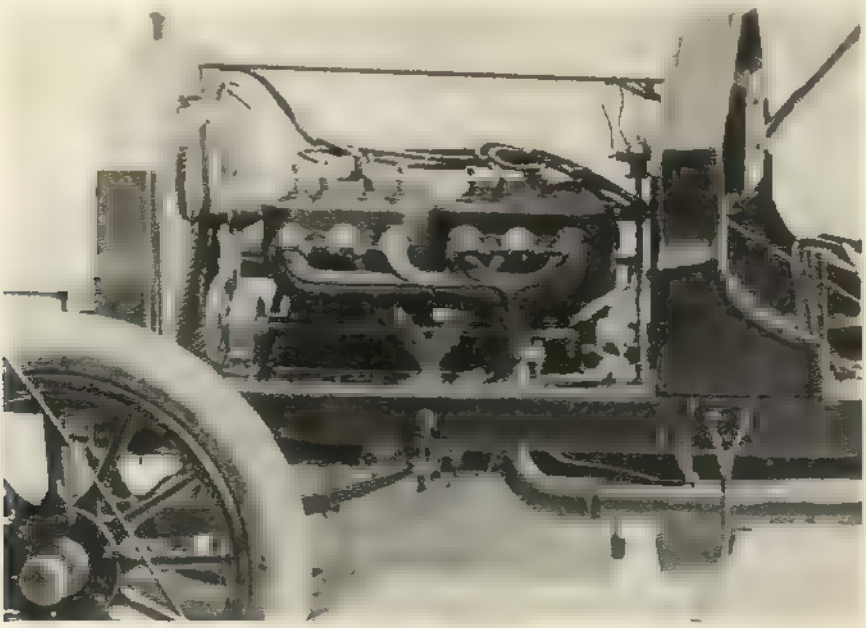


Fig. 4. 1908 C-F chassis, left side of motor. The valves are all on one side. A horizontal shaft gear driven from the cam shaft, has the fan belt shive at the left end and drives the two-pinion water circulating pinion at the right end.

A torsion arm leads from the gear case to a cross girt bracket which carries coiled springs, one above the forward end of the torsion arm and one below it. The bevel pinion shaft is on ball bearings. The rear axle construction is Garford's and is well known. The balance gear is beveled and the axles are full-floating.

BRAKES

The rear hub brake drums are 14 ins. diameter, and have external bands, lined with camel's hair, 3 hole lever applied, and internal steel-casting shoes with replaceable bronze faces, metal to metal contact, cam-rocker applied. The brakes are applied through an evener, a rocker and a bronze-bushed rocker sleeve. No line shaft brake is fitted

ride a little easier. As the spring ends drop the short "check leaf" loses in effect, so that the main leaf-assembly has its full load resistance; when the spring ends begin to rise the resistance of the superimposed check-leaf increases rapidly because of the spring forms and so prevents body tossing. Any improvement in springs is noteworthy, as the springs are the despair of motor designers.

The rear springs are linked to the rear chassis frame spring eyes by an integral steel casting, the two side members being united by a bridge close above the top of the spring end, which serves as a check to prevent this rear spring link from turning half way round in case of a violent movement, as has been known to occur with two

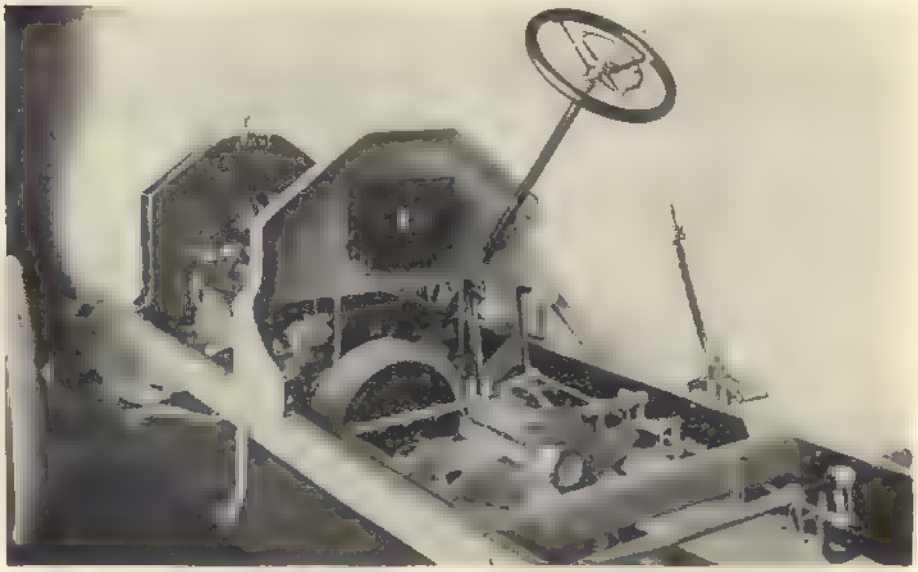


Fig. 5. 1908 [illegible] showing rear of front [illegible] rocker, ped[illegible] gear [illegible] and rocker and sleeve. The [illegible] front board gives a good support to the steering column. The whole control assembly is well [illegible] and carried out

THE 1908 C-F SPRINGS.

These are all half-elliptics, 40 ins. long x 2 ins. wide in front and 50 ins. long x 2 ins. wide in the rear. All the springs are jointed to the chassis frame in front and linked in the rear. The springs have 7 leaves in front and 10 leaves in the rear, with a short "check-leaf" on top of each spring. The spring leaves assemblage is not a regular curve, but is made high in the middle, over the spring perch. The short spring "check leaf," ends curved downward when free, is screwed down hard on top of this peculiarly curved, main spring-leaf-assembly. This arrangement leaves the spring ends free to drop and even adds something to the weight load by the downward spring pressure of this short, superimposed, "check-spring" leaf, so that the springs are a little softer than if the short leaf were not placed, and therefore

plain links, not bridged over the spring end, making it needful to stop the car, jack up the axle and replace the spring and links in proper position.

THE C-F CAR BODIES.

These are all made of sheet steel. The touring bodies are what is known as "straight line" in general effect, and have doors swinging to the rear

The roadster bodies have deeply cowled front boards, the steel cowl ends being extended to the rear to enclose the forward foot space with sides 8½ ins. high, improving the appearance and retaining small articles which may be carried on the foot board. The upholstering is in the best material and the painting is first class, both in materials and number of coats applied

CONTROL.

The steering is Garford's worn and worm sector action, all enclosed. The spark and

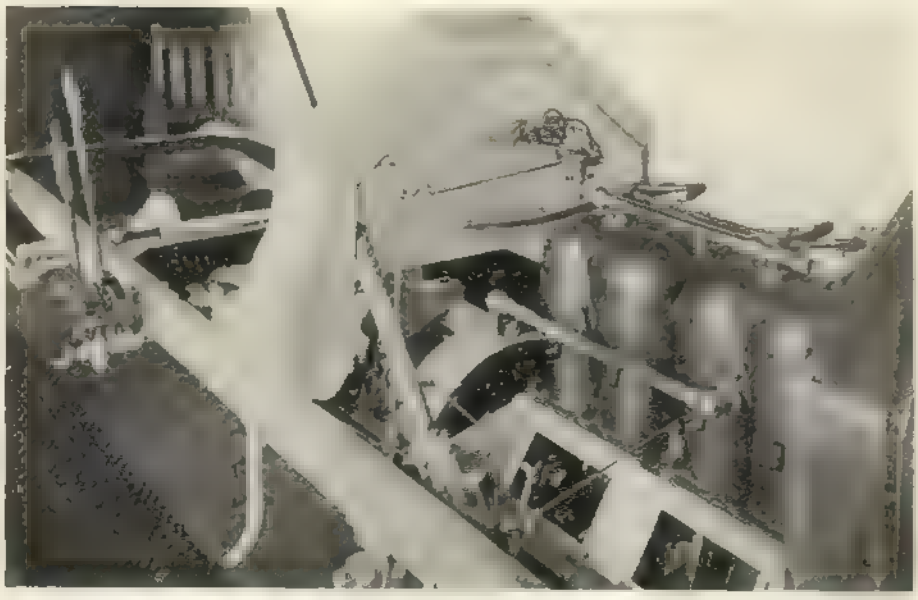


Fig. 6. 1908 C-F chassis, right side of motor, obtained looking to the rear showing steering post, front of front board, spark and throttle control linkages, commutator, water connections and the motor base opened to give access to the crankshaft. The C-F spark control linkage has been carefully worked out and is clearly shown in this picture. A vertical rock shaft is placed in ball-bearings fixt to the front board so as to transmit motion to the commutator thru straight globe end connections and a globe end link is passed across the motor base to the carburetor. These linkages are in good mechanical form and the ball-bearings obviate hard oiling and make the spark control action smooth and flexible. It is the careful work up out of connections shown in this makes a car convenient and satisfactory to the driver on the road.

throttle levers are ratchet retained on top of the hand wheel. The carefully designed spark and throttle linkages have previously been noted at some length.

There are two outside levers, the outer one, latched, when pulled backward first disengages the clutch and then applies the internal, emergency, rear hub brake shoes.

The inside lever is in a wide slot and is pulled inward or pushed outward before moving fore and aft to effect the selective gear shaft.

There are two pedals on the foot board. The left pedal disengages the clutch. The right pedal applies the ordinary external brake bands to the rear hub drums by a single rock shaft. The internal brake shoes are applied through an evener.

Palmer & Singer Bring Out New Car

The Palmer & Singer Co., of New York City, are now placing on the market a complete line of high-powered cars, known as the Palmer and Singer, or P. & S. cars. In addition, the Simplex car, formerly marketed by Smith & Mabley Mfg. Co., will also be marketed from the new Palmer & Singer Building, 1620 Broadway, N. Y. The 4-cylinder, 40 H. P. P. & S., known as Model 4-40, will sell for $4000 to $5000, according to bodies, and will seat 7 passengers. The other model will be a superbly finished town car at a comparatively moderate price.

The American Automobile Association proposes to promote Gymkhanna sports, brake tests, dust trials and events of like character. The officers of the American Automobile Association believe that such a meeting might be held at the close of each annual tour and at a time when it will be possible to secure the largest attendance of the members of the A. A. A.

The Daimer Motor Co., Ltd., manufacturer of the English-Daimler has instituted a scheme of engineering scholarships for young men over 18 years of age. The candidate must pass an examination in mathematics, mechanics, and physical sciences. The successful candidates are given two years' training in the shops, and at the same time have a course of study mapped out for them by a competent instructor.

According to reliable sources of information the entrance to the Long Island Motor Parkway will be off the Jerico road and one mile below the famous Krug's Corners, where the headquarters of the officials of the Motor Parkway will be located. The plans have been made for the building of a $20,000 home for the officials. Long Islanders state that the work has advanced further than any one realizes and that Spring will see everything going forward actively to a consummation of the plans so carefully laid for several years.

The Deraine 2-Cycle Motor Car

HUGH DOLNAR

The Simplex Manufacturing Company 7500 Quincy Avenue, Cleveland, Ohio, U. S. A., began business in 1906 in a small but very complete factory of its own, with William E. Sherbondy as Factory Superintendent and Earl H. Sherbondy as draftsman and designer. Of these two brothers, William E. is a machinist of some 15 years experience, 12 years closely connected with the gas engine, while Earl H. had a special technical training at The University School of Cleveland, is a student of the gas engine and has strong preferences for the 2-stroke cycle and air-cooling.

Earl H. Sherbondy designed and built his first, 4-cylinder, 2-cycle, air-cooled motor in 1905, cylinders 4 x 4 ins.

This was a strong, flexible motor and the cooling was wholly satisfactory. The design for the car and motor here illustrated and described was begun in 1906, Earl H. being the designer and draftsman and William E. Sherbondy the constructor. The two brothers carried on a small business as general machinists and built the car as they had time, placing it on the road in August, 1907, with

Fig. 1. Deraine 2-cycle air-cooled motor touring car chassis, right side elevation. Wheel base 112 ins., gauge 56 ins. Tires all 34 x 4 ins. Motor four vertical cylinders, 2-cycle, air-cooled, 4 7/16 x 4 ins., 38½ B. H. P. at 1600 R. P. M. The speed change is gears always engaged with solid jaw clutches, 3 forward speeds and a reverse with bevel gear to full floating rear axles. Weight of chassis only, about 1,700 lbs.

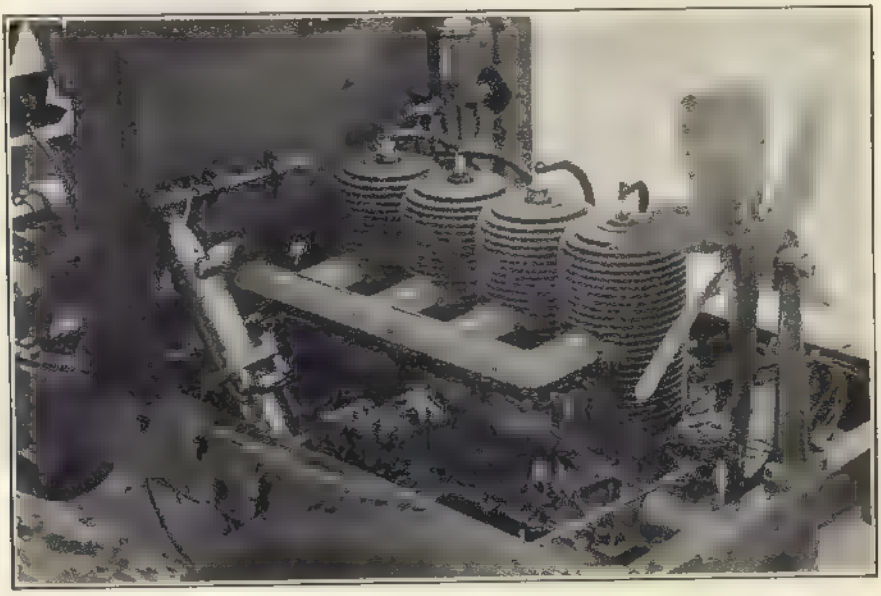


Fig. 3. Left side of Deraine 2-cycle air-cooled motor in position, two cylinders removed, showing pistons and rods and top of the motor base. The lubrication is by a 5-lead compression graphite and grease cup, leads to the crankshaft journals, hand operated, and a 2-lead automatic oiler, leads to two points in the pipe from carburetor to crank box equidistant from cylinders. The fifth crankshaft bearing is lubricated by a spring-compression, heavy-grease cup, graphite and heavy grease lubricant. This illustration gives a fair idea of the deflector form finally adopted, after many changes. The deflector is as high as the symmetrical combustion chamber permits and the deflector ends are rounded off to suit the rounded compression chamber corners

a tester's seat only, and driving it some 3,000 or 4,000 miles since that time.

NOTABLE FEATURES.

The most striking feature of this Deraine motor is the successful air-cooling with cylinders set very closely together, 5¾ ins. only from center to center, 4 7/16 ins. bore, and a single fan in front with no hood whatever. The outside diameter of the cooling-rib circle is 6½ ins., making it needful to slab off the cooling ribs to place the cylinders on the base, so that the fan has very small effect on the second and third cylinders. The first cylinder is coolest, next comes the fourth, then the second, with the third cylinder hotest all as would be expected with this construction and arrangement. But even the hot third cylinder has never shown any sign of over-heating either in the way of weak pressure or sticking of the piston from deficient lubrication.

Besides this good air-cooling with seemingly inadequate agents, this Deraine car is notable for a new form of clutch, the engaging member being an integral, toggle-expanded bronze ring cut in one place only, for novelties in the crank-box form and for an original speed change gear design, gears always in mesh.

THE DERAINE MOTOR.

The cylinders shown in these illustrations differ from the drawings, so that no construction drawing is available. The crank-box supply is by a third port which is ⅝ long x 3 ins. circumferential width; the intake port is 9/16 x 3¼ and the exhaust port is ⅞ x 3½ ins. The cranks have no filling bobs on the arms, which are only ¾ thick and the crank-pits are only 3⅝ long, the sides being close to the crank-arms and the bottom member of the crank-box, which is split in the plane of the crankshaft axis, giving the rod-ends ⅛ clearance only.

The crankshaft wrists and journals are all 1⅜ diameter and the crank-boxes are babbitt, poured directly into seats cast in the base and lower crank-case member. An indicator card of the crank-box pressure shows 5 lbs.

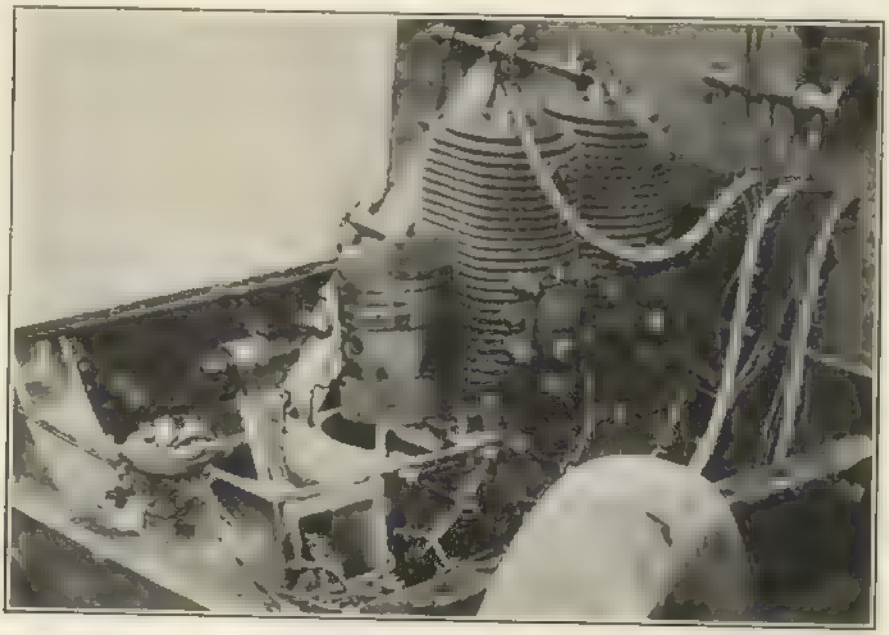


Fig. 2. Right Side of Deraine [illegible] motor [illegible] showing [illegible] exhaust pipe [illegible] the carburetor [illegible] port supply pipe. The [illegible] system is a storage [illegible] pitched 7-16 [illegible] C., and cover the [illegible] as [illegible] throttling was tried and discarded in favor of [illegible] throttling [illegible] pressure [illegible] give 85 lbs. with cold air. The action of the fan in front is supplemented by the [illegible] wheel [illegible] rear.

No device of any kind is fitted to pack the shaft between the crank-pits. The motor shows maximum power at 1600 R. P. M., which is the highest speed yet attempted on the testing stand.

The bevel gear ratio is 3 to 1, with 34 inch wheels, 1623 crankshaft turns to the mile.

The car has made 45 miles an hour, which would give the motor 1217 R. P. M., motor working strongly of course.

The Deraine fan-fly-wheel is 20 ins. diameter, 4 ins. face, with 6 fan arms, weight of wheel 76 lbs. The total weight of motor with the fly-wheel is 260 lbs. actual scale weight, very light for 38 H. P.

The average fuel consumption is about one

gallon to 16 miles, and strangely enough this remains nearly the same with any of the several carburetors yet tried.

AXLES AND CHASSIS FRAME.

These are of conventional design, and are not of sufficient interest to demand detail description at this time, as it is not the present

Fig 4. Two views of the Deraine 2-cycle air-cooled cylinder, finished showing construction The upright cylinder, right hand of illustration, shows the exhaust port above the crank box intake port, piped to the carburetor

purpose of the Sherbondy's to market the Deraine immediately. As shown by the illustrations, the Deraine car is well proportioned and well designed throughout

DERAINE SPRINGS

These are half-elliptics in front and full elliptics in the rear, all 1¾ wide, tongued and grooved

The front springs are 36 ins long, 5-leaves, perched in the middle, jointed in front and linked in the rear to the chassis frame.

Fig 5. Deraine change gear The gears are all soft nickel steel, c d. p always all engaged, speed changes obtained by solid-jaw sliding clutches all soft. Both the line shaft and side shaft are in plain phosphor bronze bearings.

The rear full elliptics are 36 ins. long, 5 leaves, fixed to both the axles and the chassis frame brackets. The Deraine rear full elliptics are not revolubly connected either top or bottom, but are rigidly fixed to the axle and to the chassis frame brackets

THE DERAINE CLUTCH.

This is the result of careful and extended study of many accepted clutch forms, is simple, comprising but few parts, is small, is sure to free itself when disengaged and drives perfectly in all degrees of slipping engagement. It is proposed to offer this clutch for sale to the trade

The clutch expanding member assembly is shown in Fig. 6. A toggle linkage is placed between the free ends of this clutch expanding member and the middle joint of this toggle linkage is supplied with an inclined

Fig 6. Deraine expanding clutch member, intermediate shaft and coiled spring assembly placed between the motor fly-wheel and the gear-box line shaft

face to co-act with a 45 degree cone pushed forward by the 368 lbs. thrust of a coiled spring, and so expand the bronze clutch member. The drum, integral with the fly-wheel, is 6½ ins. diameter x 3⅞ face, covered by an oil-tight cap.

The clutch expanding member is 6 485 ins. diam turned to a true circle 15-1000ths small

The cylindrical rim is connected to the hub by one arm only, is finished by turning in the lathe and is then completed by one saw-

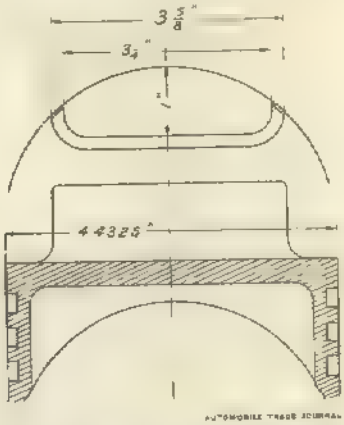


Fig. 7. Deraine piston, top end, and deflector. The cylinder bore is 4 7-16 in. The total length of the piston is 5¾ ins. The piston form is a straight taper 3-1000ths small at the bottom and 5-1000ths small at the top. The deflector is 1 in. high as high as will clear the cylinder head.

cut through the rim opposite the single arm.

THE DERAINE SPEED CHANGE

In common with many other mechanics, Earl H. Sherbondy regards the sliding gear

Fig. 8. Deraine control. The spark lever is ratchet retained on top of the hand wheel. The steering action is right and left screw threads and nuts.

The outside hand lever, not yet placed will work the external brake band. The hand lever shown is in two slots, the wide rock-shaft and lever moving together sidewise to effect the selective gear clutch operation.

There are 3 large pedals and one small throttle pedal. The left pedal works the clutch, normally spring engaged. The middle and right pedals are twins, moving together to first disengage the clutch and then apply the cam-rocker expanded rear hub drum brake shoes. The small pedal between works the throttle.

with extreme disfavor, although liking the toothed gear speed change, and this led him to place the arrangement shown in Fig. 5 in the Deraine car, soft nickel-steel gears, 6, D. P., all gears always in mesh, solid-jaw clutch engagement.

The clutch jaws were first fitted without lost motion and the change selection could not be handled at all on the road. The clutch jaws now have considerable sidewise clearance and the clutch handles well and the change gear is silent.

THE SHERBONDY DEFLECTOR

The Sherbondy Brothers tried more than one form of deflector in this motor, and made experiments with a visible charge under pressure, so that the actual course of the incoming charge could be observed.

However, no visible charge entrance can give entirely correct information if the cylinder is open, because of the lack of partial vacuum which follows the opening of the exhaust port in the 2-cycle motor, which when working must considerably affect the movement of the entering charge.

The form of deflector adopted for this motor is shown in Fig. 7, and though it is the result of many trials and long continued experiments it does not differ materially from many previous examples in the work of other 2-cycle motor designers. The Sherbondy's are convinced of the value of deflector height, and make this dimension as great as cylinder head clearance will permit.

The above reproduction shows the enlarged plant of the Diamond Chain & Mfg. Co. at Indianapolis, Ind. The four story addition now completed makes the entire plant one of the most modern in construction, and with the increased facilities the capacity of output is more than double. Diamond Chains are made in 138 styles and for almost every purpose. The Diamond Company is now making a full line of sprockets and is also prepared to manufacture automobile and machinery parts on contract and build automatic machinery for special purposes.

Just why both city, and particularly suburban, authorities wink at horse-drawn vehicles going without lights at night and make trouble for a motor car, even if the tail light happens to blow out, is one thing that many automobilists would like explained.

"A man driving a horse does not need a light to see with, and, therefore does not carry one, but if he new the risk that he is constantly running by driving without any kind of a signal, he would make it a point never to go without one."

The 1908 Glide Cars

The Bartholomew Company, of Peoria, Ill., pioneers in the automobile business, have passed very rapidly thru the successive stages from building $750.00 runabouts up through the course of light touring cars, both single and double cylinder, and the medium weight four-cylinder touring car to the construction of large, luxuriously equipt 7-passenger cars. One of the 1906 models was noted for having made one of the longest automobile journeys over a new route from the Pacific to the Atlantic Coast in the hands of W. S. Gehr, and it is stated that it is now running and giving active and satisfactory service.

The Glide line for 1908 consists of three cars: the Model "G" four-cylinder 40 H. P. touring car at $2500.00; the Model "G" Special, four-cylinder, 45 H. P. touring car at $3000.00, and the Model "H," six-cylinder, 60 H. P. touring car at $5000.00.

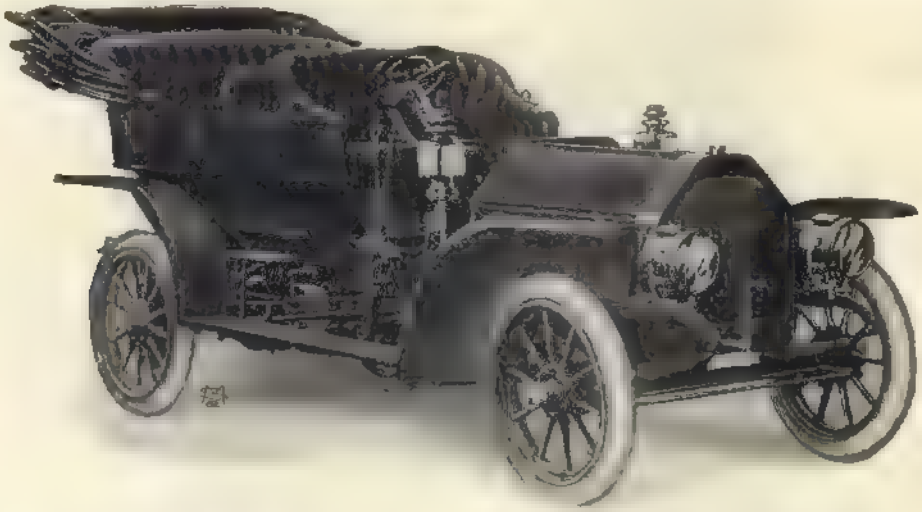


Fig. 1. 1908 Glide Model G Special motor, 4 cylinders, water-cooled, 4¾ x 5, 45 H. P., located in the front on a sub frame, special die cast babbitt crank shaft and cam shaft bearings are used; ignition is by Bosch magneto and also from storage batteries. 3 speed and reverse sliding change gear is mounted on the rear axle and operated on the selective principle, wheel base, 120 ins., 56 ins. wheels on roller bearings 4 in. tires front and rear, semi elliptic springs front and rear, front springs 4 x 2 ins., 7 leaves, rear, 58 x 3 ins., 19 leaves; double set of brakes on the rear wheels, the torsion of the brakes being taken by the long strut rods and not by the axle, seating capacity, 5 or 7, weight complete, 3200 lbs., with an equipment of horn, oil lamps and tools the price is $3000.

THE MODEL "G."

The Model "G" touring car was marketed very widely and with minor improvements will be sold during the season of 1908. This car is equipt with a 40 H. P. Rutenber motor, multiple disc clutch in the fly-wheel, sliding gear, selective type transmission, located on the rear axle and the rear axle itself, which is a special Glide feature, has won favor because of its large, ample gears and special Timken roller bearings. The wheel base is 120 inches and the wheels are equipt with 34 x 4 tires. The design is a pleasing one because of the straight line body effect and the comfortable, roomy seats. One of the special features of Model "G" is the double braking system, using the multiple disc brakes in the rear wheel hubs and also the camel's hair lined contracting external brake, either of which is sufficiently powerful to bring the wheels under absolute control of the operator and stop the car in the shortest possible space. This car is a noted hill climber, being built in the hills and tested for that kind of service, and not only has power to negotiate hills, but has brakes to control the car in going down hills.

THE MODEL "H."

The Model "H" six-cylinder Glide is the popular type of high-powered, long wheel based touring car which is intended to meet the demands of those who wish a large, roomy, powerful machine. The wheel base is 132 inches, and the wheels are 36 x 4½. It is provided with the Glide rear axle, the sliding gear, selective type transmission and multiple disc clutch. The engine is the well known 4½ x 5 six-cylinder Rutenber. In general body design it is similar to other Glide cars, and is arranged to seat five or seven passengers.

The Glide Model "G Special," herewith illustrated, is the latest production offered by this company, and its special features will be taken up in connection with the cuts and drawings shown.

Figure 1 shows the Glide Model "G" Special" with top equipment. The wheels are either 34 x 4 or 34 x 4½, as ordered, wheel base is 120 inches. The motor is 4¾ x 5

Rutenber, 45 H. P. The clutch is the multiple disc type. The driving shaft has an angularity of but four degrees, and the universal joint is in front, instead of at the rear, of the transmission. The change gear is of the selective type, three speeds forward and one reverse, being attached to the rear axle housing so that the entire construction forms a unit. The rear axle has specially large gears, 2½-inch face, and the differential is hung on large Timken roller bearings, one on either side, the axle shafts being supported at either end near the wheels by two additional Timken roller bearings, making six roller bearings in the rear axle assembly. The rear wheel brakes are double-acting, both internal expanding, metal to metal and external camel's-hair lined contracting. Being mounted as the car is upon ample Timken roller bearings in front and rear axles, the engine is given every advantage to use its power without a large per cent. being lost in friction.

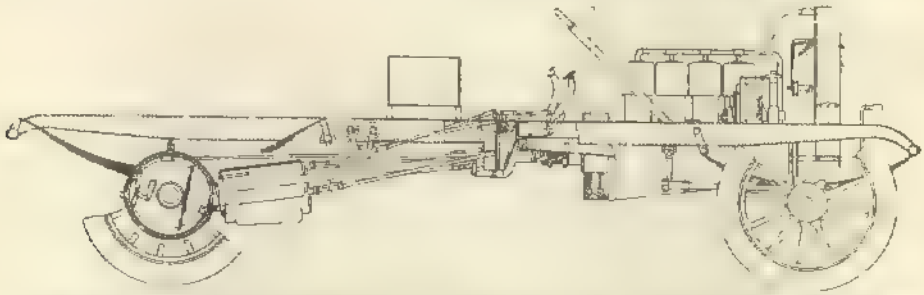


Fig 2. Side elevation of the Model G Special chassis, which shows the pedal and brake arrangements and also the position and mounting of the change speed gear case on the rear axle. The driving shaft housing extends forward and is mounted at the front end in a ball joint which rests on a cross frame member. This ball contains a universal joint which is also arranged to act as a slip joint. The shaft housing and two rods running from the ball to the ends of the rear axle constitute the torsion members and as the brake anchors are mounted on this triangular construction and simply slipped over the rear axle casing but not fastened to it, the reaction of the brakes is taken by these rods and does not tend to rotate the rear axle casing, which, of course, relieves the springs. The thrust is transmitted through this triangular system to the ball on the heavy cross frame member.

The Rutenber motor is one of the oldest produced in this country, and still holds the record of having made the greatest number of miles in 24 hours, namely, 1093¼ miles. This record was made with the motor fitted with a Schebler carburetor, which the company is prepared to furnish with this engine, claiming it to be a combination that cannot well be excelled. This motor is so well known that the details of its construction need not be given, as the new models were described in the January, 1908, issue of the Cycle & Automobile Trade Journal, page 128. The bearings and general construction are so well carried out that it has not been excelled for durability or power. After the severest tests to which it has been subjected, in running continuously on endurance runs, etc., when examined it is claimed to have been found as perfect as when it started.

GLIDE MULTIPLE DISC CLUTCH

The multiple disc clutch used in the fly-wheel consists of a series of alternate plates or discs about 13 inches in diameter. Six are attached to and carried by the fly-wheel and the alternating five plates are attached to and carried by the clutch shaft. These discs are engaged by the usual spring pressure, and disengaged by a foot lever. Inasmuch as the plates run in oil and become coated with a film when the clutch is released, it is readily seen that when the pressure of the spring forces the plates together, this oil must be forced out between the plates into oil recesses before the plates finally become closely prest together, thus acting as a cushion to relieve the sudden strain upon the motor and preventing the objectionable jerking of the car and strain upon the change speed gears. This clutch is shown in the accompanying drawing. The company state it has performed its work so perfectly that one word of complaint has never been heard about it.

THE UNIVERSAL JOINT.

At the rear end of the clutch shaft, as shown, there is interposed between it and the transmission shaft a universal joint of large proportions. Inasmuch as this joint is ahead of the transmision instead of back of it, as is the case in many automobiles, it does not receive the same heavy strain that is produced in a joint in the usual position when suddenly changing to a lower gear. It is telescoped not only on to the clutch shaft, but on to the transmission shaft sliding on milled key-ways, thus eliminating any loose keys that might cause trouble. By reference to the plan view of Model "G" Special chassis it will be seen that the universal joint is encased in a large ball joint. The housing of this universal joint forms a pocket at the lower side which carries a certain amount of oil into which the universal joint dips and is thus always thoroughly oiled. The ends of the clutch and propeller shafts which receive the universal joint knuckles are provided with three integral keys, the stock between them being milled away. The knuckles of the universal joint are fitted to these ends, a nice sliding fit, forming a coupling of the most flexible and

durable type. The rear axle is held in position by means of two very heavy strut-rods which are attached to the brake flange at the rear and to the ball joint at the front. These strut-rods are ample in size to readily stand any amount of strain that is likely to be put upon them in keeping the rear axle in its true position, and the ball joint allows a freedom of motion in a rotating direction so as to relieve the prest steel frame and the rear axle alike from any cramping or any undue stress.

the bolt the caps can be quickly removed. The gears are interchangeable and are fastened to the counter-shaft by means of dowel pins and cap screws, while the reverse and low speed pinions are held by means of Woodruff keys. The gears are straight 6-pitch, which the company considers better than using any form of stub tooth. The shaft carrying the sliding gear member is milled so as to form integral keys and four key-ways, ½ x ¼ inch deep, transmit the load.

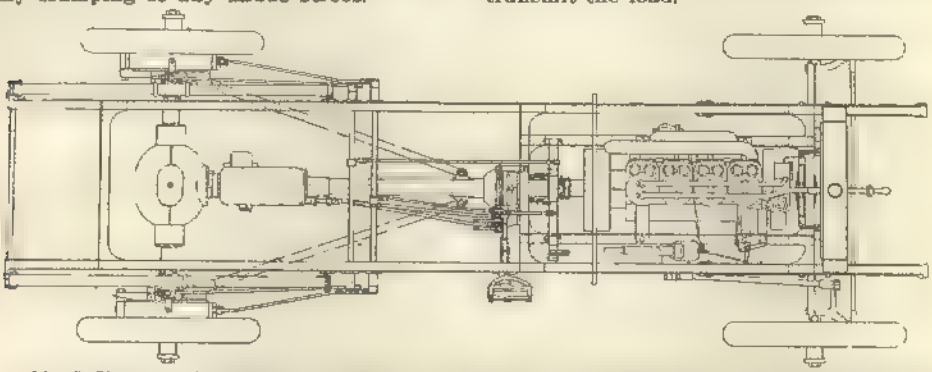


Fig. 3 Plan view of 1908 Model G Special. This view gives a general idea of the arrangement of the motor, change gear, etc., in the frame. It also shows the triangular strut rod assembly and the very large brakes on the rear wheel hubs, also the extreme length of the rear springs.

BRAKES.

Particular attention is called to the new and novel features of the brake arrangements. The brakes are anchored in position by means of the strut rods which run forward to the ball universal joint. Consequently the rear axle is relieved from torsional strain which would tend to separate the rear axle from the transmission gear box. These brakes are arranged so that one is independent of the other. The internal, metal to metal service brake is controlled by means of the pedal at the feet of the operator and is not latched. The braking surface is of sufficient size to cause the rear wheels to slide, if occasion should require. The external camel hair lined contracting band brake is operated by a hand lever with ratchet, so that it can be locked in position if it should be desirable to hold the car on a grade. The hub drum on the rear wheel has 3-inch face and is 16 inches in diameter, giving ample braking surface to control the car absolutely with load on any kind of hill.

THE CHANGE SPEED GEAR

The transmission carries the counter-shaft below the main driving shaft, thus allowing it to be completely submerged in oil without the oil flowing into the rear axle and being wasted, as before stated, the transmission is incorporated as a part of the rear axle construction. This counter-shaft is hollow and a bolt is put thru the entire length of the case holding the covering caps in place at the ends and giving the transmission considerable rigidity and also making the parts accessible, as by unscrewing the nuts at the ends of

The gear change is of the selective type, there being two individual rods, these rods being retained in their proper positions by a ball check lock. These rods are interchangeable and are slightly separated so that when one is moved there is no tendency to carry the other along with it. By means of the locking device, when the gears are once placed in mesh in their proper position, this alignment cannot be lost. The entire change gear and rear axle construction forms a compact unit and special attention is called to the fact

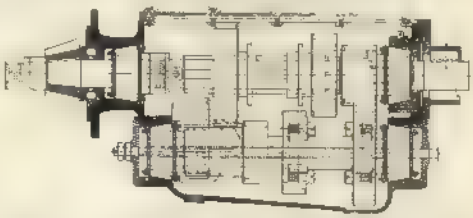


Fig. 4 Change speed gear of Model G Special. This change speed gear case is mounted on the rear axle, the counter shaft or lay shaft being below the main shaft. These shafts are mounted on large Timken roller bearings. The lay shaft is hollow and the bolt is passed thru it from end to end, which holds the front and rear cover plates. On the top of the case, in fact the entire top of the case forms a large hand hole plate which is held by winged thumb nuts as shown. The gears are 6 pitch of liberal face, give 3 speeds forward and one reverse and are operated selectively. The main shaft is milled, forming integral splines upon which the sliding gear members move. The thrust of the bevel pinion is taken by a ball thrust bearing as shown.

that the stay-rods are attached to the brake anchors, which are slipped on to the rear axle, but are not fastened to it, and that the forward end of these rods is fastened to the ball joint in the centre of the machine and this rests in a socket on a cross bar of the prest steel frame. By means of this construction the torsion of the axle,

as well as its thrust, is taken by the strut-rods and delivered at the ball joint, which is well forward of the centre of the car. This construction is probably responsible for the entire absence of broken springs in the 1907 Glide cars.

The rear axle is of the semi-floating type, the axle shafts being 2 in. in diameter, the inner ends being milled with four integral keys so that they are perfectly inserted into corresponding key-ways in the two large differential pinions at the centre of the axle and they are held in position by the roller bearing adjustment nuts and by merely loosening same the rear axle shafts can be withdrawn at will without loosening any other part of the rear axle or its housing.

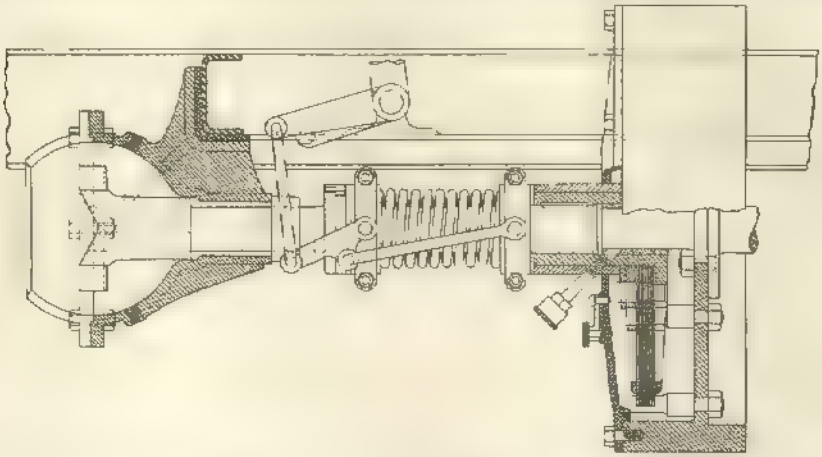


Fig. 5. Partial sectional view of Model G Special multiple disc clutch and universal joint. This clutch as shown is entirely encased in the fly wheel and consists of a series of discs 13 inches in diameter. Six discs are attached to the fly wheel and the five alternating discs are carried by the clutch shaft. The clutch is engaged by the usual spring arrangement and disengaged by foot levers. The plates run in an oil bath. The ball shaft housing at the left encloses the universal joint and carries the supply of oil into which the joint dips as it rotates. This housing is rigidly attached to the cross frame member and supports the forward end of the propeller shaft housing and transmits the thrust of the rear wheels to the frame.

SUMMARY OF SPECIAL FEATURES

Attention is called to the following features which are claimed as novel in the Glide Special construction:

The universal ball joint and coupling at the centre of the car, which prevents any undue strain upon any portion of the construction and relieves the gears and shaft in the transmission and rear axle from any backward lash or jam, which might disable the gears. The exceptionally large and perfect working internal and external brakes are so arranged that there is absolutely no torsion on the rear axle or possibility of twisting it out of its anchors when the brakes are operated. The unit construction of the transmission and rear axle mechanism where the greatest work is performed in propelling the car. The unusually large and strong gear teeth in both the transmission and the driving gears. The Rutenber motor used in the Glide Special car is provided with an internal, self contained oiling device, which keeps the oil at a constant oil level and thus regulates the oiling of the motor to a certainty and prevents over-oiling and sooting spark plugs. The motor is fitted with a double system of ignition, both the battery and the magneto, the Bosch magneto being geared to the timer shaft and the gears encased. The car is finished in automobile red, Brewster green or automobile gray. The price complete, with headlights and extension top, is $3150.00.

According to figures received by the American Motor Car Manufacturers' Association the exports of automobiles during 1907 total 2,894 with a value of $5,120,963 against a total of 1,155 cars and a value of $1,792,308 during 1906. This is a gain of 1,730 cars and $3 328,655 in valuation.

W. O. Foster & Co., Newton, Ia., expect to bring out a light-weight, high-wheel, rig fitted with a double cylinder, air-cooled motor, and friction drive, doing away entirely with differential and transmission gears and not even using any chains or sprockets.

The French Automobile Club is trying an interesting experiment in Paris. It has enlisted and will provide for the expense of maintaining a bicycle auxiliary force, whose chief duty will consist in warning motorists who may be unconsciously infringing municipal regulations. Each bicycle policeman carries three small flags, meaning respectively "smoke," "too fast," and "smell." The squad now devotes its attention to the Champs Elysees, but if the service is found effective, it will be increased to include all principal thoroughfares.

The 1908 Knox Cars

HUGH DOLNAR

The Knox Automobile Company, Springfield, Mass., U. S. A., was formed in 1899 to exploit the patented Knox system of gas-engine cylinder direct air-cooling, and has, since that time, evolved a very diversified line of highly successful motor cars all driven by motors directly air-cooled, adopting "The Knox Waterless" as its slogan and battle cry.

Fig. 1. Knox 1908 Model G waterless 7-passenger touring car. Wheel base 112 inches. Gage 56 inches. Tires 34x4 inches front, 34x4½ rear. Motor four, vertical, air-cooled, 4¾x5½ inches, 35 H. P. Cone-clutch, selective sliding gear 3 forward speeds and a reverse with side chains to the rear wheels. Weight about 2800 pounds. Price $4,000, including 5 lamps, mats horn and tools, ready for the road. Cape top, $200 extra.

Speaking strictly, all car motors are, and always must be, air-cooled, as the little cooling water carried must itself be air-cooled, and if the cylinders can be given the same cooling surface area that suffices for the radiator, and can equally expose this cylinder cooling surface to air currents, then the advocates of water cooling are forced to assert that a given volume of air in motion will cool one metal surface more readily, rapidly and effectively than it will cool another metal surface, equally well disposed for cooling effect, which is absurd.

But in spite of this perfectly fair and truthful statement of actual motor cylinder cooling conditions, and of the absolutely satisfactory performance of some thousands of Knox Waterless motors in the hands of purchasers, the Knox Waterless 1908 line of cars is headed by the water cooled model L, with water jacketed cylinders, water circulating pump and radiator.

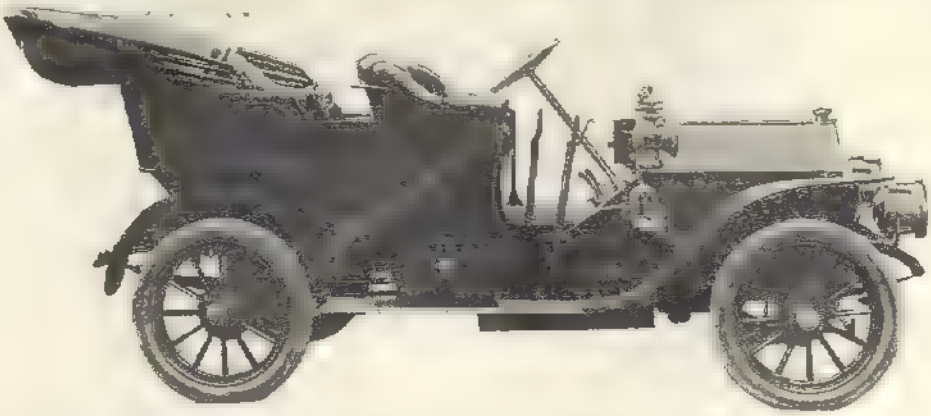


Fig. 2. Knox 1908 Model L, water-cooled, 5-passenger touring car. Wheel base 102 inches. Gage 56 inches. Motor, water-cooled, four cylinders, 4 cycle, 4⅝x4¾ inches, 39.6 H. P. Cone clutch, selective, 3 forward speeds and a reverse sliding gear to bevel gear and divided rear axles. Weight 2400 lbs. Price $2700, including 5 lamps, mats horn and tools, ready for the road. Cape top $150 extra, water proof, folding and extension.

This Knox water-cooled motor is offered solely because of lack of sufficient knowledge on the part of the public to enable intending purchasers to come to independent conclusions as to the real values of water cooling and direct air-cooling compared with each other. The car buyer does not yet feel competent to judge for himself, and is therefore influenced by the majority opinions of selling agents which are in favor of water cooling simply because our American car builder began copying European water-cooled practice and consequently are offering water-cooled motors to-day, and hence must assert that water cooling is preferable to air-cooling, no matter how satisfactory the performance of air-cooled motor cars may be.

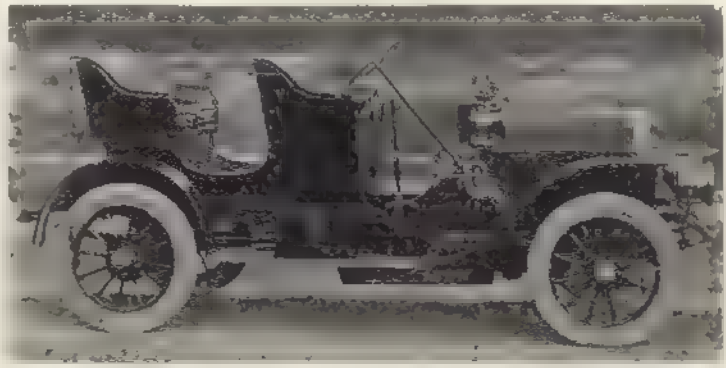


Fig. 3. Knox 1908 Tourabout, air-cooled or water-cooled. Model H or Model L chassis. Weight, as shown, [illegible] pounds. Price $2600, including 5 amps, mats, horn and tools, ready for the road. With detachable tonneau the weight is about 2360 pounds, price $2700, same equipment.

Present indications point to a 1908 production of more cars in number driven by direct air-cooling motors than by motors which have water jacketed cylinders, and the Knox engineers and managers are as sure now as they ever were that direct air-cooling is better for car motors than water cooling, yet it is undoubtedly wise for this company to head its line of 1908 cars with a water-cooled motor model, if simply to

Fig. 4. Knox 1908 Model L, water-cooled, four-cylinder motor, right side. The valves are in the applied cylinder heads, no valve cages and are worked with push rods and overhead beams from one cam-shaft located in the motor base. The single-unit cylinders are 4¾x4¾ inches. 30.6 H. P. The motor base and oil basin are aluminum alloy castings. The ignition is one jump-spark plug in each cylinder, with dry cell storage battery and box of four coils on the front board. The lubrication is by one force pump which forces the oil from a well in the oil pan through unobstructed oil leads to the crank shaft journals, whence the oil drains to the oil well and is then returned by the rotary oil pump to the crank-shaft journals.

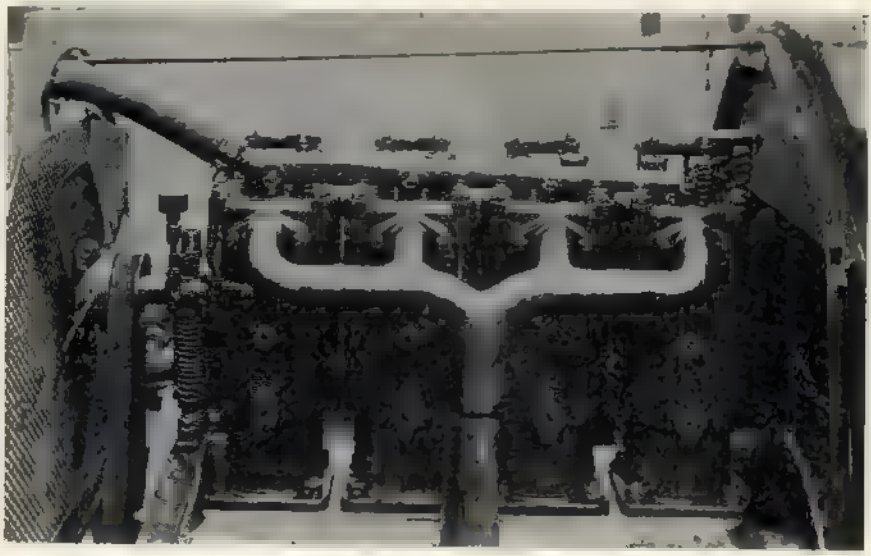


Fig. 5. Knox 1908 Model L, four-cylinder motor, water-cooled. Left side, showing exhaust pipe and belt-driven fan. The fan is hung on a swinging arm, fitted with a coiled spring which maintains a constant fan-belt tension. The cylinders are single-unit castings.

cater to public demands, right and wrong.

This first Knox water-cooled motor is simply the Knox 1907 Model H motor, water jacketed, and given very large water-spaces around the valves which are placed in applied cylinder heads, all up to the very latest and best water-cooled practice, so that those who buy the Knox 1908 cars with water-jacketed motor cylinders may expect the best result which can be obtained with water cooling. Direct air-cooling includes no circulating pump, radiator leakage nor freezing troubles, and the Knox company continues to offer its air-cooled motors for 1908.

The Knox 1907 Model H chassis construction, fully described in the November, 1906 issue of the Journal, gave most gratifying results thruout the season of 1907, and is continued for 1908 unchanged with direct air-cooling and changed only as to cylinder water jacketing and the addition of the water piping, circulating pump and radiator in the Knox 1908 Model L chassis.

ON THE ROAD.

Wednesday, November 13, a Knox 1908, 4-cylinder, water-cooled Model L touring car left the Hotel Worthy, Springfield, Mass., at 2.15 P. M., Thomas E. Crane driving and the writer tonneau passenger for once, because the Knox folks had so much to say about the Model L springs.

The day was fine and not so very cold on the sidewalk, but there was no suffering from heat when the Model L struck a 40-mile clip on the clear road to Chicopee Falls. After a short stop at the Falls, Crane, who is an expert driver and perfectly at home in the Knox 1908 Model L, and seemed to be in a hurry, hustled the car thru Holyoke and over Mount Tom to Easthampton, with the writer now as front-seat passenger. The road from Springfield to Chicopee Falls is fairly smooth, not very smooth, and tho the Model L springs are excellent, one-passenger on the tonneau seat did not hold them down to their work, but even at 40 miles the rear-seat riding was pretty easy, no tossing and no spring-closing.

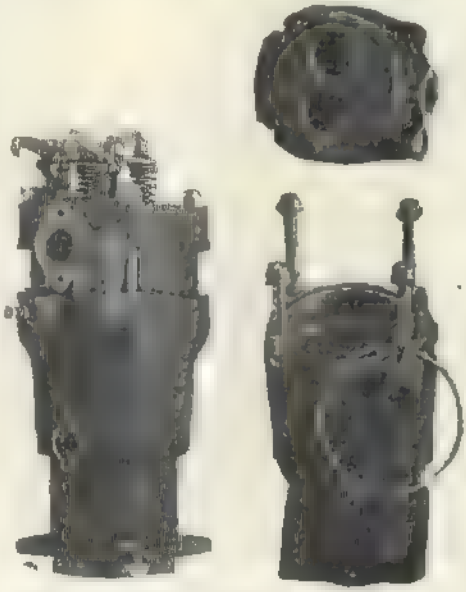


Fig. 6. Knox 1908 Model L, water cylinder and applied cylinder head. The valves are seated in the head itself, no valve cages used. The water passages in the cylinder head are large, and the water cooling of the exhaust valve is effective.

Immediately after passing the crest of

Mount Tom, we overtook a joyous party of five Easthampton college students, two males and three Co-Eds, all bare-headed, carrying autumn leaves and evergreens and making the best of the chilly November sunshine. We took this bare-headed bunch of five into the tonneau, making seven passengers up. The road is very bad, crooked and rough clay with big water-breakers every rod or two, winding down the north side of Mount Tom, and the girls made plenty of noise as we hustled over the bumps, but even with five passengers, all well grown, in the tonneau and two in front, the springs did not close at all, and the front seat riding was extremly good. From the foot of Mount Tom to Easthampton the road is smooth and straight for two or three miles and we took it at 45 or 50 miles. We left our student passengers somewhere between Easthampton and Northampton and passed Northampton Court House at 3.40 P. M., headed for Smith's Ferry and Mount Tom Station. The roads were very good indeed, especially along the west bank of the Connecticut, from Smith's Ferry to Holyoke, and as the way was clear Crane put the Model L up to 50 or so which gave us a wintry wind in our faces as we flew over the smooth, winding road. We did the 21 miles from Northampton Court House to the Knox Factory in Springfield in 43 minutes, which was very fast as we had to go slow thru Holyoke and Chicopee and in the Springfield streets. The whole run of 42 miles was made on high gear and the Model L did not slacken speed on any hill in the route, doing much more in the way of climbing when we had seven passengers aboard than the cylinder diameter seemed to promise, while the springs deserve all that the Knox folks say in praise of them.

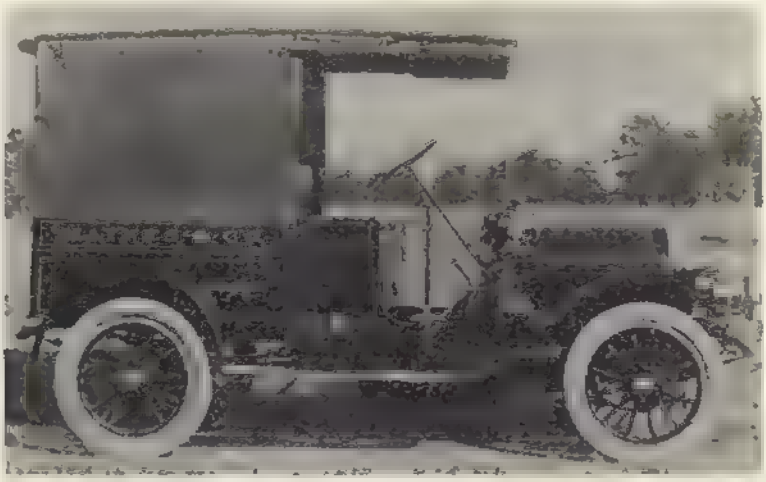


Fig. 7. Knox 1908 600 lbs. paying load, 4-cylinder motor, air cooled Model H chassis, commercial car. Wheel base 102 inches. Gage 5 inches. Tires all 1x4 inches, pneumatic. Motor, four-cylinders, air-cooled, 4¾x4¾ inches. 30 H. P. Cone clutch, metal to metal with cork inserts. Sliding gear, 3 forward speeds and a reverse. Bevel gear to divided rear axles. Weight 2600 pounds. Price $1700, including 3 oil lamps, mat, horn and tools.

New Buick 4-Cylinder Runabout

The Buick Motor Company, of Flint, Mich., has added an entirely new 4-cylinder runabout of light weight and comparatively low price to its 1908 line. This little car has a 4-cylinder, vertical motor of 20 H. P., the bore and stroke each being 3¾ inches. The frame is of prest steel, and the motor is suspended on a subframe of similar material. The wheel base is 88 inches, and the gage standard.

Ignition is by jump spark from a single coil and distributor, current by storage battery. The motor is water cooled and is lubricated by a gear driven force feed oiler. A cone clutch of the common type is used, the change speed gear being a two-speed and one reverse planetary. The slow speed ahead and reverse are by pedals, and the clutch is operated by a side lever. The drive is by shaft and bevel gear to the divided rear axle. Internal expanding hubs are used on the rear wheel drums, and an external contracting band brake is provided in the rear of the change speed gear. The wheels are all fitted with 30x3 inch tires.

The springs are semi-elliptic in front and full elliptic in the rear. A neat runabout body with detachable rumble seat is fitted. The car sells for $850 f. o. b. the factory, Flint, Mich., including oil side lamps, tail lamp, generator, gas headlights, horn and repair outfit. A top with shifting rail is supplied for $50 extra, and the box at the rear with rumble seat is also $60 extra.

The 1908 Lorraine Cars

HUGH DOLNAR.

The Lorraine Automobile Manufacturing Company, Chicago, Illinois, U. S. A., was organized in 1907 to exploit the motor car inventions of Mr. John O. Hobbs in self-starting devices and "elastic" or spring-cushioned driving-shafts. This elastic shaft is not a universal-joint substitute used to drive through angular variations of the transmission line, but cushions the torque to avoid undue stress from exceptional road-resistances or when starting.

Operations began in March, 1907, to perfect the Hobbs self-starting motor car, first placed on the road in 1903. Hobbs had long been aware of the value of the cushioned drive and used his "elastic" propeller shaft in the first Lorraine Model designed by him, and placed on the road in May, 1907. Since last May this first Lorraine Model has been subjected to continued severe road tests with no revelation of defects, and it was shown without change of any kind at the Chicago December, 1907 exhibition as the Lorraine Model L.

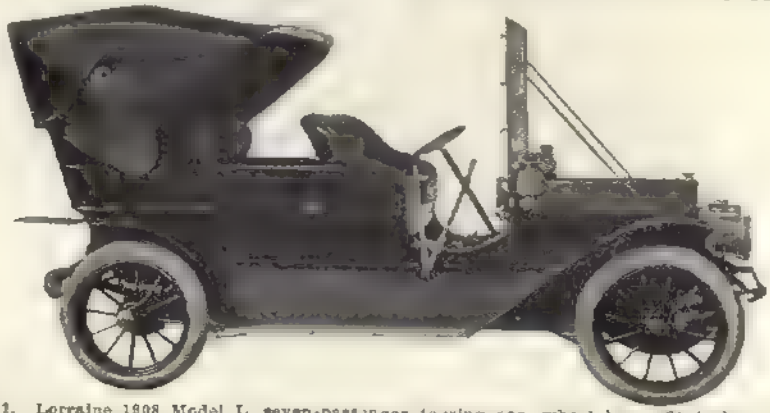


Fig. 1. Lorraine 1908 Model L, seven-passenger touring car, wheel base 124 inches, gage 56 inches, tires all 36x4½ inches motor, four cylinders, 5x5 inches, 4-cycle water-cooled, 6 H P The cylinders are offset 1¾ inches Jump spark ignition with 4-coil box and special dynamo current supply fitted with automatic cut-off. As an option the Lorraine ignition No. 2 consisting of jump spark plugs, 4 coil box [illegible] volt storage battery and Simms-Bosch high tension magneto is fitted Cone clutch leather faced with six gradual engagement spring plungers fitted under the leather facing at the large end of the cone Sliding gear speed change, three speeds forward and a reverse, with universal joints at each end of the Hobbs elastic propeller shaft and bevel gear to the divided and full floating rear axles. Weight, 3300 pounds. Price, with seven-passenger touring car body, $4500.With extra seven-passenger limousine body, $5500. Model L chassis, with seven passenger limousine body, $5000. Model L chassis, fitted with Gentleman's Roadster body, seats for three or four passengers, $4250.

The 1908 line of cars includes four separate and distinct models of chassis, as follows:

Model "L," a seven-passenger touring car, same chassis fitted with a limousine body. Wheel-base 124 inches, gauge 56 inches. Tires all 36x4½ inches. The motor is self-starting from the driver's seat in all Lorraine cars by means of Hobbs modification of the Renault air-driven piston, rack and crank-shaft starting-pinion, air pressure obtained by a constantly-driven, separate air-compressing cylinder.

Model "L" with seven-passenger touring car body is $4,500.00, and with a seven-passenger limousine body $5,500.00. With gentleman's roadster body, two front seats, one or two rear seats, $4,250.00. The Model "L" motor is four-cylinder, 5x5 inches, 4-cycle, water-cooled, 55 H. P. nominal.

The Lorraine Models "M" and "N" are the same in general design as Model "L," but are smaller and lighter, having 110-inch wheel base, with 30 H. P. four-cylinder motors. Model "M" has tires all 34x4 inches. Model "N" has a roadster body, two front seats and one rumble seat and has tires 36x3½ inches front and 36x4 inches rear.

NOTABLE FEATURES.

All the Lorraine cars are large, have large diameter tires, and are driven by 4-cylinder, 4-cycle, water-cooled motors, and "Triple Action" springs are fitted.

In addition to these features of excellence along conventional lines and in the well-beaten paths of established construction, the 1908 models are equipped with special devices in the way of the Hobbs self-start, the Hobbs cushioned drive and the electric lamp lighters.

THE SELF START

Unquestionably, the self-start is a fundamental requirement of elegant, convenient and safe motor car driving. Nothing could be more discordant and misplaced than the necessity for hand-cranking a magnificent and impressive 60-mile touring car before it has power to move its wheels, while for smaller cars convenience and quick action equally demand the automatic start, instantly obtained with the

Hobbs compressed air self-start by simply turning the small handle which opens the compressed-air tank to the motor-starting cylinder.

Air pressure is obtained by a Herz air-pump, two cylinders, driven from the circulating pump and magneto shaft. Compressed air is piped to a tank 10 inches diameter by 32 inches long, located under the tonneau seat. This tank is piped to the air-starting cylinder, 3½ inches diameter and to a pressure gauge on the rear of the front board. When this air gauge shows 60 pounds pressure the driver throws the air pump out of action by disengaging its disk driving clutch. This air start device is clearly shown in the diagram, Fig. 3, on the next page

THE ELASTIC DRIVE.

The Hobbs elastic or spring-cushioned shaft is a no less obvious necessity than the self-start and lamp-lighting devices. The best road may present accidental obstructions endangering a powerful car with rigid transmission which must drive the wheels at a certain rapid rate or break the shafting or the transmission gears, although both motive power and strength of transmission are abundant to push the car through or over the road obstacle if a small margin of propeller-shaft elasticity were available. The Hobbs spring-cushioned drive supplies this needful element of automatic accommodation, and thus reduces to its lowest terms the probability of disablement through sudden stress, and

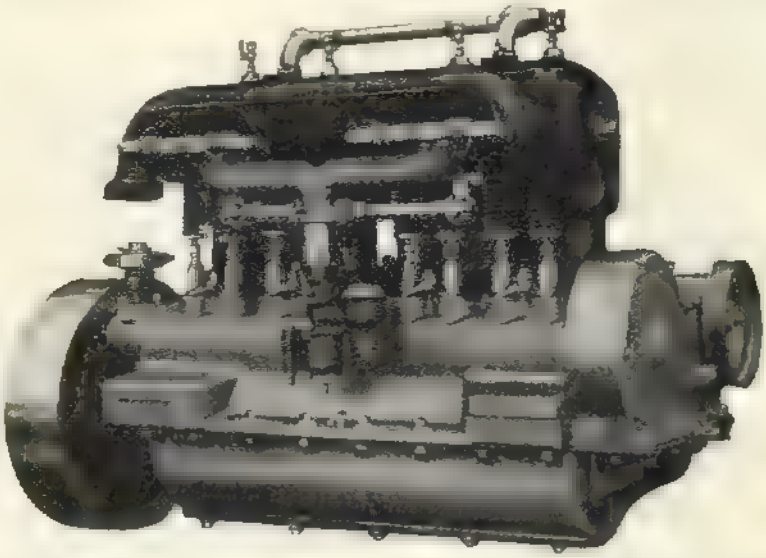


Fig. 2. Lorraine 1908 Motors. These are 4-cylinder, 4-cycle, water cooled, in two sizes, as fitted to the Model L chassis, the cylinders are 5x6 inches, 55 H. P. maximum. As fitted to the Lorraine 1908 Models M and N the motor cylinders are 4¼x4¼ inches, 36 H. P. maximum. The motor construction is of the best throughout, both as to materials and workmanship. The valves are all on one side, the lubrication is splash, with mechanical oiler. All gears and the cam shaft are enclosed and are open to crank box splash lubrication

With the self-start, all necessity for the severe muscular exertion of cranking and all danger from "back firing" disappears altogether, and the gentleman or lady driver is neither endangered in life or limb at starting, nor in these cars is the driver forced to stop and descend from the car to perform the menial duties of lamp lighting. What horse owner would submit to the performance of the stableman's tasks? Yet the cranking of a large motor calls for more strenuous muscular exertion than is demanded of the common laborer in the streets and the ordinary car lamp lighting, though not so laborious, is none the less an act of menial servitude, and nothing but the newness of the motor car makes the acts of motor-starting and lamp-lighting tolerable to the gentleman or lady motorist, if indeed either one has the muscular power needful for cranking 5-inch cylinders.

it is not too much to say that the self-start and the cushioned drive must become indispensable features of the successful automobile, so soon as the motoring public is made aware of the value of these possibilities.

The chassis is fitted with A. O. Smith Company axles, all wheels on ball-bearings, but Timken axles and bearings are placed to order. The steering actions and speed change gears are of their own design and construction.

THE LORRAINE SPRINGS.

The springs are "Triple Action" half-elliptics hung on coiled springs above, these coiled springs being placed under flat-spring ends; this flat spring having its ends supported by the coiled springs has a second, shorter, independent flat spring placed on top of it; these second springs are linked at their ends to bell-cranks which are so actuated by deflection of the

principal flat spring as to straighten the second, shorter, spring-leaves more rapidly than they would be straightened were they applied in direct contact with the leaf of the first spring in the usual manner. This peculiar triple-spring is a recently patented arrangement, for which

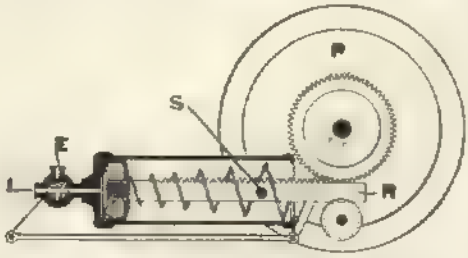


Fig. 3. Lorraine Air-Start Diagram. The air cylinder, 3½ inches diameter, has a cupped leather piston fixt to a rack engaging a pinion, one-way clutched to the line shaft this starting pinion is located close in front of the gear box and the driver's foot-board. The rack is under the starting pinion, and is held up to the pinion engagement by a roller underneath. The rack is surrounded by a helical spring which returns it, and the pinion and piston, after making a working stroke. The piston three-way valve is shown in section at the left, in intake position, the compressed air being piped to the valve at L. When the piston moves to the right it turns the crank shaft by means of the rack and pinion, R and P, until the rack stud S moves the valve linkage and valve so that the valve right side moves upward 90 degrees, cutting off the compressed air supply to the starting cylinder and opening the cylinder to the exhaust passage E, when the helical spring returns the air piston to the position shown in the diagram, where it remains until the three-way air valve is turned by the driver to give compressed air to the starting cylinder and cause the starting piston to make another working stroke. The air tank holds air enough to give several starting piston strokes with an initial 60 pounds tank pressure. The air pressure gage on the front board informs the driver as to the air tank pressure so that the air compressor can be started and stopped as may be needful. Air from the tank can be used to inflate the tires.

new advantages are claimed. Since it is not intended that the coiled springs should ever close so that the coils touch each other, it is evident that the coiled spring resistance or supporting power must be suitably proportioned to that of the principal flat spring, and the coiled spring tension also has a fundamental relation to the extension of the second flat spring. The action of this triple spring is very easy on good roads and the total spring resistance is rapidly increased by the tension of the second flat spring due to the bell-crank leverage increase as the first, or longer, flat spring yields to the load so that this triple spring is claimed to have more total resistance to closing than an equal weight of spring in ordinary form, and this triple spring is also said to toss the car much less than an ordinary half-elliptic spring of the same total resistance or load supporting capacity.

THE LORRAINE ELECTRIC LIGHTING.

This is a recent Chicago invention, in which a peculiar armature winding is employed in a small dynamo, gear driven from the motor, so that the dynamo always has a positive drive. This gear-driven dynamo is certain to be operative because the gear turns it when the motor runs. It is asserted that the armature winding is such as to make it possible to thus gear the motor and dynamo together, giving the dynamo large speed variations, and yet obtain a satisfactory lamp-lighting current. About 170 Chicago cars have been fitted with this new electric lighting system, patents applied for, which is not yet ready for detailed description. The inventor of this electric lighting, which is, of course, readily controlled from the driver's seat, said that it had been fitted to only some seven or eight cars in New York city, and that the first cost was about $80.00, or something like twice the cost of an acetylene lighting plant; the operating costs of this electric lighting are, however, much less than those of acetylene lighting, being limited to rare replacements, while the convenience and self generation of the lighting agent are vastly in favor of the gear-driven dynamo car-lighting equipment.

R. E. Hardy Co., 86 Watts street, New York City, is making a special style of the No. 4A "Sta Rite" spark plug. The new style is for use with magneto and has four grounded points to which the spark may jump from the central electrode.

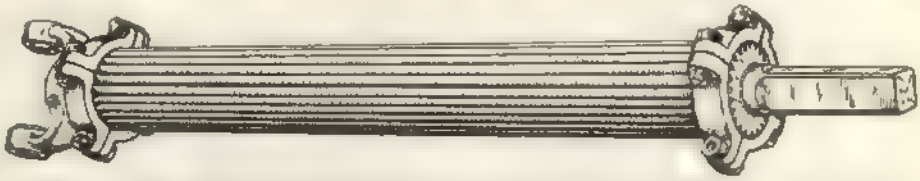


Fig. 4. Hobbs' Elastic Propeller Shaft. This is an annular arrangement of 24 steel rods each 5-16 diameter, spaced close together and retained at each end in grooved hubs. The rod ends are forged three-cornered all 60 degree angles so that when the rods are clamped in the notched hub disks by the screw adjusted, 4-piece clamps as shown, twisting the assemblage of rods bodily also twists each rod individually. The torsion of the 24 steel rods is sufficient to transmit a powerful torque but to limit this torsion, solid jaw clutch members are introduced, having 22½ degrees of jaw clearance, which is the limit of spring driving in this arrangement. The effect of this peculiar elastic shaft is exactly the same as the ordinary 2-spider drive with coiled springs between the spider arm ends, and the operation, of course lessens the effects of road obstacle shock on the transmission elements.

The Studebaker Bros. Mfg. Co. exhibit of automobiles, street sprinklers, garbage and dump wagons, contractor's wagons and trucks at the Jamestown Exposition was awarded a diploma and gold medal for vehicles

Staver Carriage Company's High Wheeler

The Staver Carriage Co., of Auburn Park, Ill., has announced its 1908 Model "D," a cut of which is herewith shown.

The body is of stanhope pattern, of very handsome design, with one piece panel in the sides. The seat is 40 inches wide on top of the cushion, and is 19 inches deep. The back is 24 inches high, and from the top of the footboard to the top of the cushion is 16 inches. The weight of the car is 1700 pounds, and the passenger capacity is two. The price, complete with top, side curtains, storm apron, two gas head lights, two oil side lights and one tail light, is $1000. The wheel base is 78 inches, and the tread 56.

Model "D" Staver. This machine is fitted with a water-cooled two-cylinder opposed motor of 5x5, driving three Whitney chains to the rear wheels. A countershaft is mounted on Standard roller bearings, and carries the sprockets at its outer ends. Change speed is by planetary with multiple disc clutch for high, controlled by lever on steering column at the left. Slow and reverse are by pedals. Lubrication is by force feed oiler. The wheel base is 78 inches, tread 56, and the road clearance is 18½ inches. The price completely equipt is $1000.

MOTOR.

The motor is two cylinders opposed, water-cooled, and is three point suspended under the body. The valves are all mechanically operated. The bore is 5 instead of 5⅛, as last year, and 5-inch stroke is used instead of 4½ inches, as in the previous model. The engine is rated as 18.20 H. P. at 950 R. P. M. A honeycomb radiator with fins made entirely of copper with brass shell is used. The fan has a shaft extending to the rear, friction driven from the flywheel. The water pump is gear driven, and the system carries about 5 gallons. About one-half gallon of oil and 8 gallons of gasoline are carried. The carburetor is a Schebler of 1¼-inch opening. A six-feed mechanical lubricator is fitted.

Ignition is by jump spark, and a timer of special design is keyed or pinned thru the cam shaft, so it cannot get loose. It is of the three ball contact type.

CHANGE SPEED AND CONTROL.

An improved two speed planetary change gear on phosphor bronze bearings is used. The high speed clutch is of the multiple disc type lined with gray fibre, and is controlled by a short lever on top of the steering column at the left of the car. The slow speed ahead and reverse are operated by pedals. Steering is by lever with spark and throttle control levers on the steering column. Emergency brakes are supplied on each rear wheel.

Whitney roller chains, 1-inch pitch and ½-inch wide, drive from a countershaft mounted on Standard roller bearings, to the rear wheel sprockets, which with the brake drums are strap clamped to alternate spokes. All the castings used in the construction, it is claimed, are made of Vanadium steel.

Full elliptic springs with scroll ends are used at the rear, and in front three-quarter elliptics are fitted. The shackles on the rear scroll ends allow for chain adjustment. The high wheels are fitted with 1¼-inch solid side wire tires in front, and 1½ inches on the rear. The car has 18½ inches road clearance.

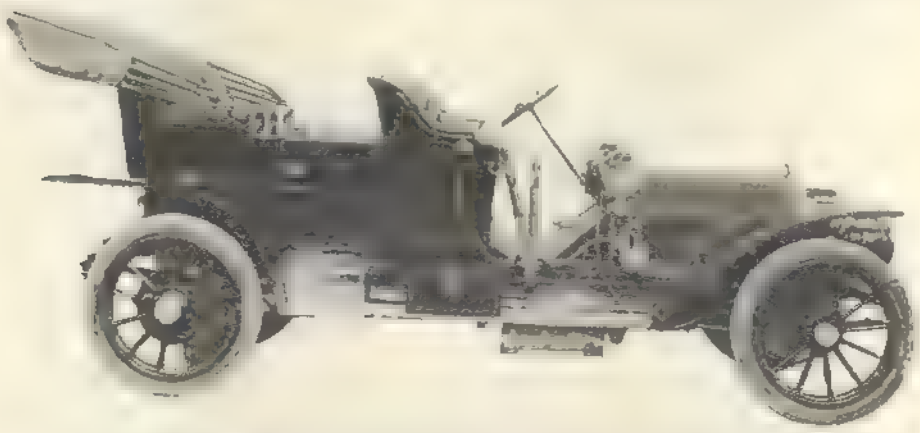
The Columbus Buggy Co., Columbus, Ohio, announces that it has secured the services of Mr. D. W. Henry, formerly with the Electric Vehicle Co., of Hartford, Conn., who will hereafter represent the Columbus Co. in the capacity of traveling salesman for the automobile end of its business.

The Stevens-Duryea 1908 Cars

HUGH DOLNAR.

The Stevens-Duryea Company, Chicopee Falls, Mass., U. S. A., well known as the first American motor-car builders to offer a six-cylinder pleasure car for sale, in January 1905, and as having been since that time strong advocates of the superiority of the six-cylinder motor for high-class touring cars and limousines, offered 6-cylinder cars only for 1907.

For the season of 1908, however, the Stevens-Duryea Company adds to its 1906 and 1907 line of two 6-cylinder cars, known as the "Big-Six," cylinders 4¾x5¼ inches, 50 H. P., and the "Light-Six," cylinders 3⅞x4¾ inches, 35 H. P., a new four-cylinder chassis, cylinders 4¾x4½ inches, 24 H. P. All the Stevens-Duryea motors have water-cooled cylinders, working on the 4-stroke cycle.



The New Stevens-Duryea 1908 Model X 5 passenger touring car. Wheel [illegible] inches. Gage 56 inches. [illegible] all 34x4 inches. Motor 4-cycle water-cooled, four cy[illegible] 4¾x4½ inches, 24 H. P. Multiple disc clutch, sliding gear 3 forward speeds and reverse [illegible] gear to divided rear axles. Brakes, rear hub exterior and interior. No line sh[illegible] spark plugs with dry cells and storage battery. Weight [illegible] pounds. Pri[illegible] lamps, mats, horn and tools, ready for the road. Cape Top $150 extra. Magneto ignition fitted complete $200 extra

The advent of this Stevens-Duryea, 1908, 4-cylinder model marks a change in the business policy of this large builder of American cars, altho this 4-cylinder car does not announce any change of engineering estimates of the relative values of four and six-cylinder motors to be used in high-class cars priced at $2750 and over. For cars of this size and price, the management is fully convinced that the closer approximation of the six-cylinder motor to constant torque makes it the prime requisite of touring car durability, comfort, luxury and elegance.

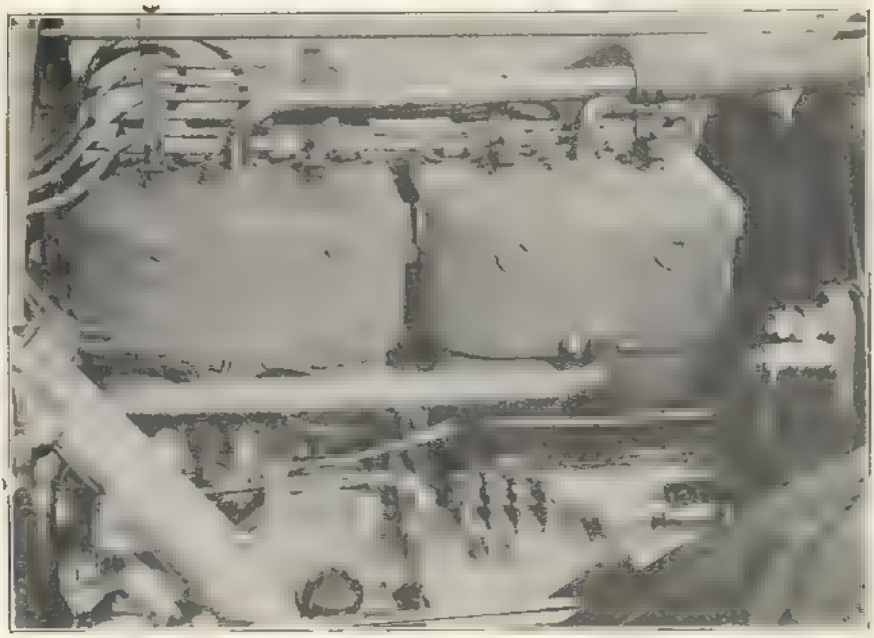
There are yet many cars built and sold which are driven by a single cylinder, much larger numbers driven by two cylinders, and a very large output of cars driven by four-cylinder motors will be offered for the season of 1908. The four-cylinder motor gives a much more nearly even turning effect on the crank shaft than the two-cylinder, and is much less costly than the six-cylinder motor, and hence must always meet the requirements of those buyers who want something better than the opposed cylinders motor and yet are not prepared to purchase six-cylinder cars. Fully realizing the preference of this large class of prospective buyers, the Stevens-Duryea has made this 4-cylinder Model X, in addition to its previous line of exclusively 6-cylinder models, simply because the 4-cylinder can be sold at a lower price than the six-cylinder model. For all purchasers who desire the best car in points of excellence of drive, durability, elegance and luxury, the company confidently recommends the six-cylinder motor as greatly superior to the very best four-cylinder that can be produced

THE NEW 4-CYLINDER MODEL.

The 1908 four-cylinder Model X, is in no sense a cheap production. The motor is along the latest and best lines of multi-cylinder gas-engine production, and the workmanship is the very best that the Stevens-Duryea factory can produce. The cylinder bore is ample, and the stroke is short, giving power, both on maximum and partial changes and smooth running at low speeds.

The 4-cylinder chassis, construction, wheels, axles, speed-change, brakes and in all details is fully equal to that of the Stevens-Duryea six-cylinder chassis, as good in every particular as the Stevens-Duryea designers and factory can produce.

The specifications of the different Stevens-Duryea 1908 cars contain all the



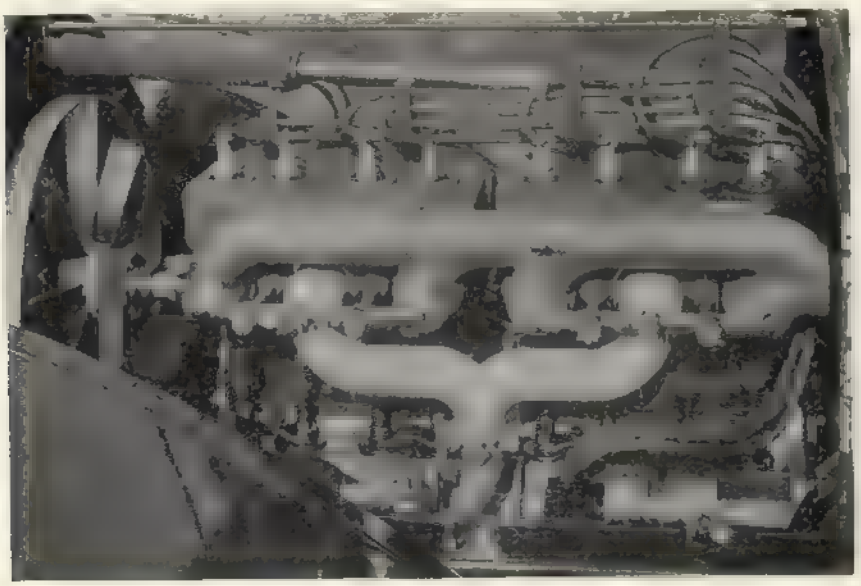
Stevens-Duryea 1908 Model X motor right side. Fly-wheel in front. Dual unit cylinders, four-lead mechanical oiler, fan belt-driven, with [illegible] belt-tightener.

mechanical particulars which the Stevens-Duryea Company desires to publish.

[illegible]

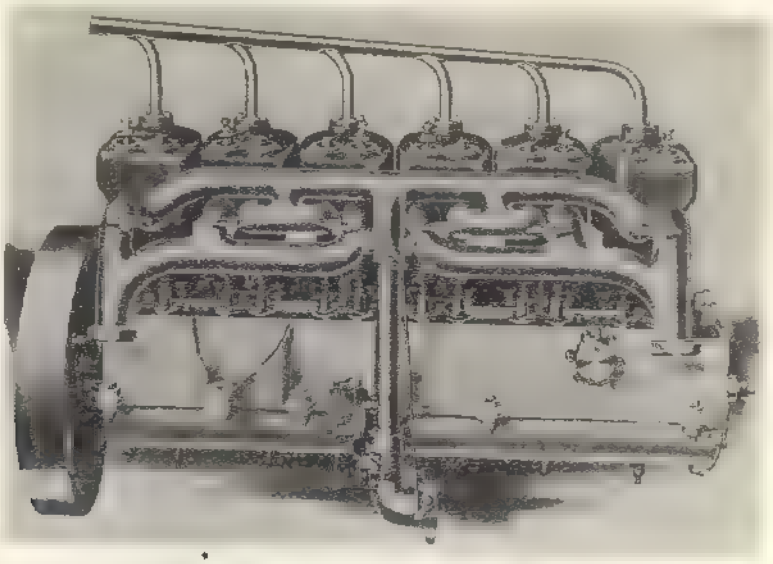
Thursday, November 14, a Stevens-Duryea "Light"Six" touring car left the Stevens-Duryea factory at Chicopee Falls, at 1.45 P. M., and was driven thru Springfield and Westfield to Huntington, about 30 miles, at 2.30 P. M.

The day opened with a little snowfall, enough to whiten the ground, but the weather cleared as the sun rose, and this "Light Six" run was made under a blue sky diversified with white clouds, giving an overhead June effect which did not harmonize with the cold November wind



Stevens-Duryea 1908 Model X. 4-cylinder motor. Cylinders water-cooled, all valves on same side, direct valve [illegible]. Jump spark plugs with magneto [illegible] complete at $-00 extra price per car. This is a left side view, the Stevens-Duryea fly-wheel being always in front of the motor.

that whistled past the ears of Albert Taylor, driver and the writer, front seat passenger, as the "Light-Six" hurried over the good gravel after turning to the westward in Springfield. The road surface is something fine all thru this 30 miles, with only one short bit of slightly rough going a little west of the turn under the railway track leaving west of Springfield, and the "Light-Six" made a steady 45-miles pace of it with down-hill glides of better than 50, so that the ride was really enjoyable in spite of the head wind blowing, to which we added our own fast rate going out.



Stevens-Duryea 1908 Model U 6-cylinder motor, left side fly-wheel in front, showing piping and Stevens-Duryea own carburetor.

This road is the Springfield-Albany route, and we passed or met several large cars carrying parties of masked tourists, more women than men in furs and goggles, showing the advance in every day motor car use.

At Huntington, in the Berkshire Hills, on the west bank of Westfield river, we warmed ourselves for 15 minutes and made the return start at 2.45 P. M. The smooth road is very crooked, winding among the bleak hills and following the west bank of the river closely to Westfield, where the whips are made.

We were making fast time, averaging nearly 50, as the country is lonely and we had the road free before us most of the time, when we had a 55 minute stop owing to trouble with the flexible shaft which drove the oiler, and as the motor was dry we ran slowly, after this vexatious delay and used 45 minutes of running time for the 30 miles between Huntington and the Stevens-Duryea factory in Chicopee

The Stevens-Duryea "Light Six" has all the smoothness of running that characterizes six-cylinder propulsion, and in addition to this is on delightfully easy springs, so that even with our light, two-passenger load the good road and almost perfect springs made this swift rush thru wintry air really delightful. We had what wind there was in our faces going out, and at our backs returning, which made it seem like springtime weather. The day was really not cold, but a 50-mile pace makes a cooling breeze.

Mr. Taylor is perfectly at home in the Stevens Duryea "Light-Six," and intended to cover the 30 miles return run in 40 minutes when we left Huntington, and was well up to his schedule when we had our oiler-shaft stop.

This 60 miles run justified the Stevens-Duryea preference for the six-cylinder motors, as the movement of the swift "Light-Six" was the smoothest within the writer's motoring experience.

Amphibious Auto

The long-talked-of French invention, which is as much at home in the water as it is on land, recently put in its appearance in New York City, together with its inventor, Jules Ravallier, who brought it to this country prepared to demonstrate its possibilities. The vehicle was driven from the heart of automobile row, New York City, to a point on the Hudson River near Fort Washington, where it plunged into the water, and after it had been driven up and down the river for a score or more times it left the water and headed for Broadway. The machine has a boat-like body with a power plant of an automobile, and is made entirely of steel. In the water it is propelled by the usual propeller, and steered by means of a rudder together with the front wheels.

The Allen-Kingston 1908 Cars

HUGH DOLNAR.

The New York Car & Truck Company, Kingston, New York, U. S. A., began the manufacture of motor cars in 1907 and will offer a 1908 line of three different automobiles; a seven-passenger touring car, a limousine to seat seven passengers and a tourabout to seat either two, three or four passengers. A landaulet body is also fitted to the seven-passenger touring car chassis when desired. All four of these 1908 models are on the same chassis, which is made in two wheel-base lengths, 125 and 121 inches, respectively.

Fig. 1. Allen-Kingston, 1908 seven-passenger touring car. Wheel base 125 inches. Gage 56 inches. Tires, 34x3½ inches front, 34x4 inches rear. Motor, 4 cylinders, 4-cycle, water-cooled, 5x5¾ inches, 45 H. P. Four speeds for ward and a reverse, selective sliding gear, direct on high speed. Bevel gear to full floating divided rear-axles with large diameter bevel balance gear. Wheels, line-shaft, side-shaft, bevel pinion shaft and balance gears, all on annular ball bearings. Full double ignition system, with two sets of spark-plugs, storage battery and Bosch magneto. Convex body lines, 3 passengers in rear seat, two revoluble, folding and detachable seats on the tonneau floor, which has ample foot space for 5 passengers. Two seats forward, screw steering gear. Weight 3100 pounds. Price $4000, including 5 lamps, mats, horn, tools and luggage carrier in the rear, ready for the road. Cape top, $100 extra.

The entire motor-car output of the New York Car and Truck Company is taken over by Mr. Walter C. Allen, No. 3, West Forty-fourth street, New York City, who will handle this line of large high-powered American automobiles under the general designation of the "Allen-Kingston" cars.

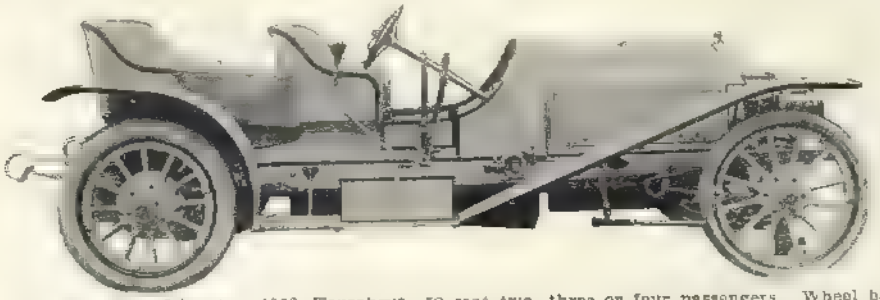


Fig. 2. Allen-Kingston 1908 Tourabout, to seat two, three or four passengers. Wheel base 121 inches. Specifications of chassis construction otherwise the same as Fig. 1. Weight, 2400 pounds. Price $3900 including 5 lamps, mats, horn and tools, all ready for the road.

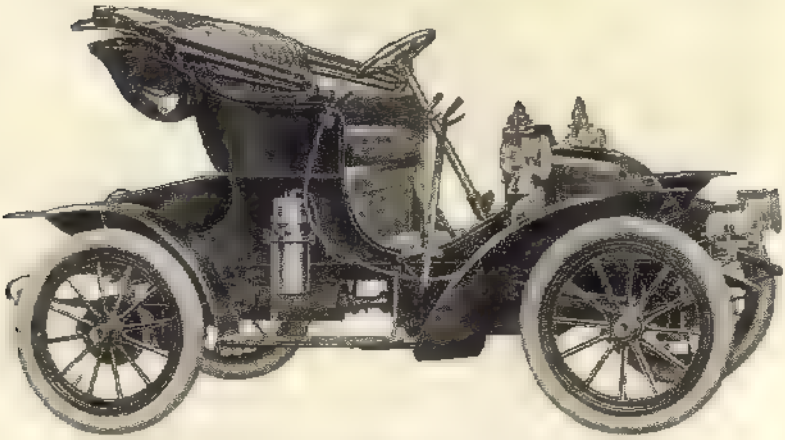
These cars were designed with a view to the production of high-class, high-powered American cars, fully equal in mechanical construction, finish and luxury of appointments to any European built machines, which could be sold for about half the price of the foreign productions simply because of the 45 per cent. import duty on automobiles.

In all essential particulars these Allen-Kingston cars have the same general arrangement as the best foreign cars. The axles are I-section forward and tubular steel in the rear, the springs are all half-elliptics, and the chassis frame is pressed steel.

The motor is four-cylinder, 4-cycle, water-cooled, 5x5¾ inches, 45 H. P. nominal. Selective sliding gear transmission, four forward speeds and a reverse, direct on the fourth speed is used with bevel gear to full-floating rear axles. All wheels and axles and the line and side shafts, are on annular ball bearings. The steering action is by right and left screw-threads, powerful, absolutely locked and so constructed as to take up all lost motion.

The ignition is a complete double equipment, storage battery reserve and Bosch magneto for regular service, the two ignition systems being so constructed that only one can be used at one time, tho either may be thrown into work by moving a switch.

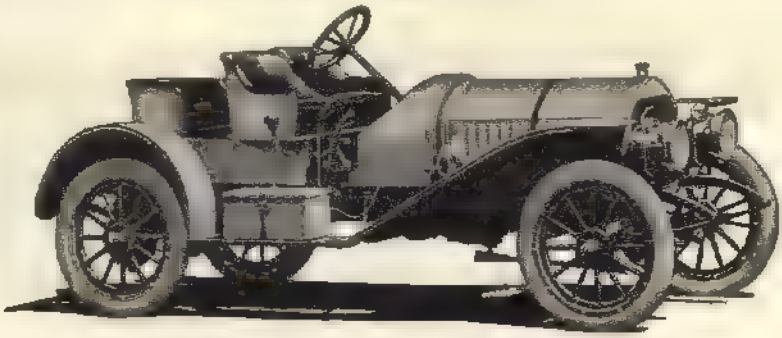
The Autocar



Type XV—Doctor's Car—$1200
(Including full equipment as shown)

The Type XV is a continuance of the standardized two-cylinder runabout which The Autocar Company has built for the past six years and which has proven the most successful American runabout built. Thousands of these cars are in daily use by physicians and business men throughout the country and they all bear testimony to the reliability and serviceability of this little car. It is the highest-priced, highest-classed and best-equipped small car on the market and its price is regulated directly by its merit. The Type XIV Roadster is an adoption of the Type XIV Chassis to those graceful and pleasing lines which designate the gentleman's Roadster.

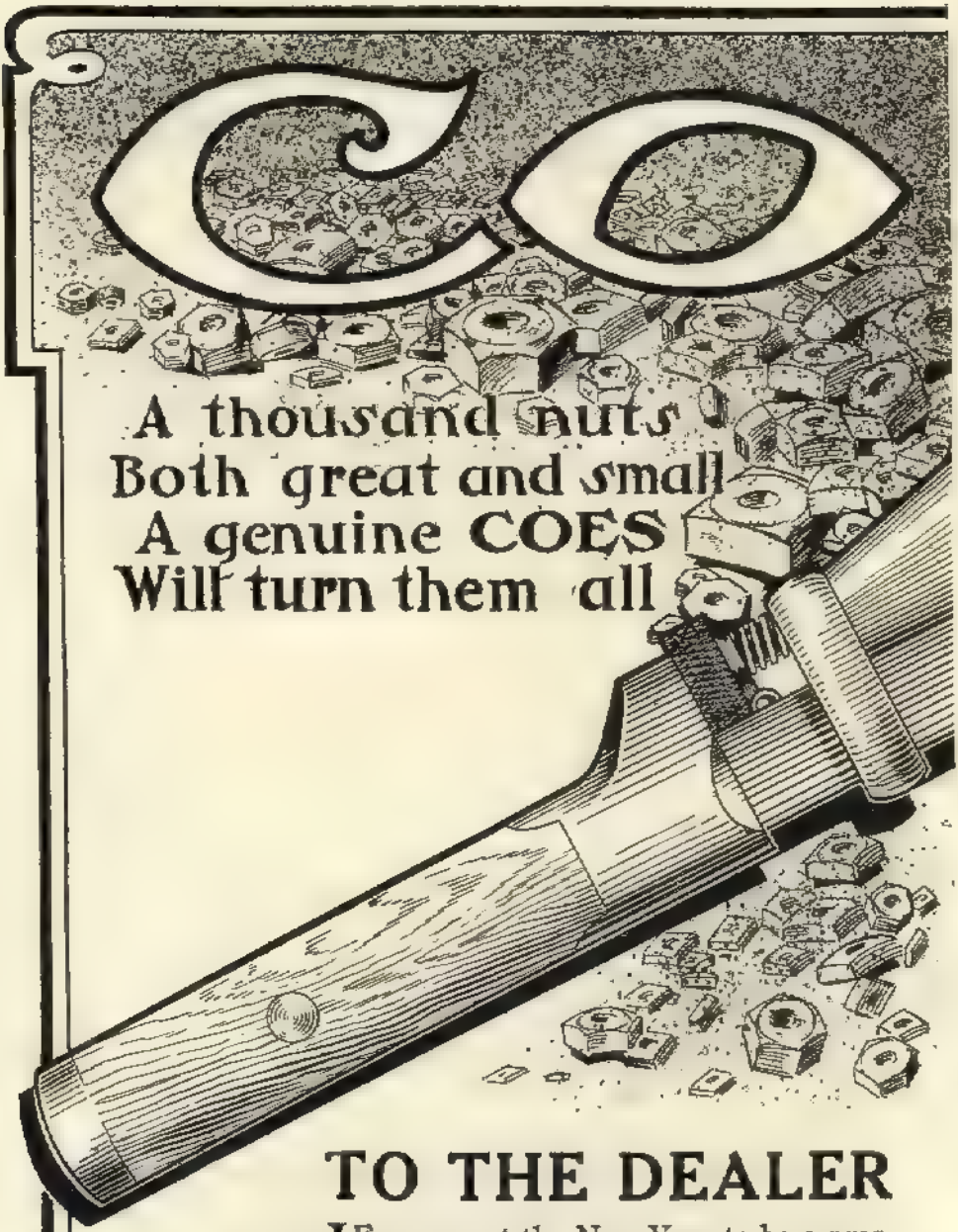
High powered, speedy, and of extremely graceful appearance, the Roadster is a car for the most fastidious.



Type XIV—30 horse-power Roadster—$2750

The Autocar Co., 12th St., Ardmore, Pa.

Member: A. L. A. M. *Write for 1908 Catalogue.*

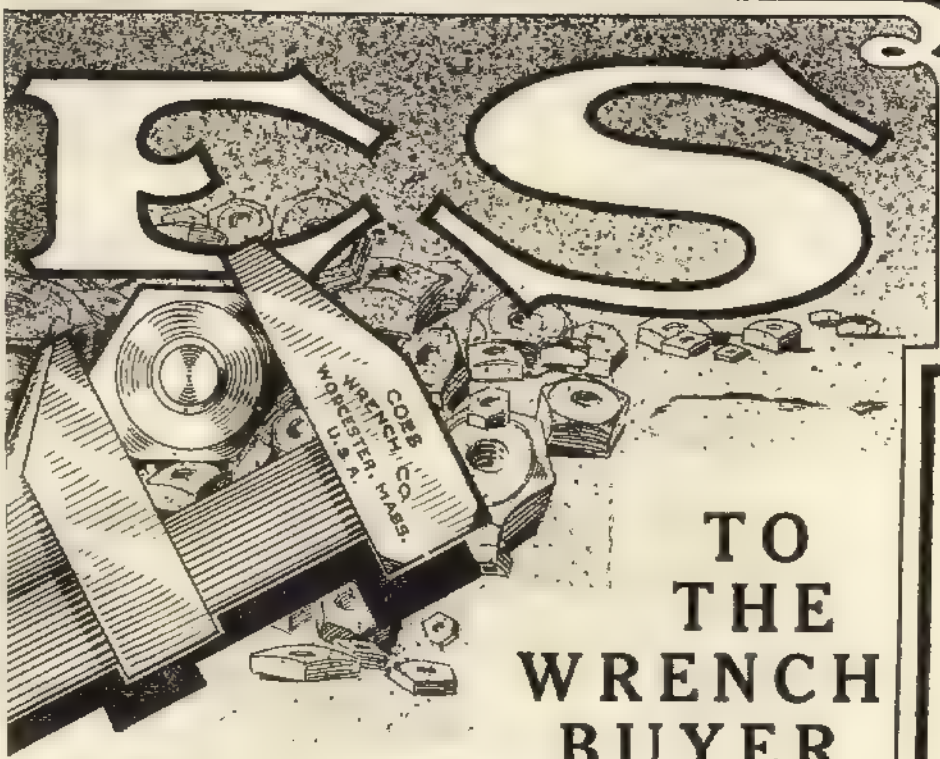


TO THE DEALER

IF you want the New Year to be a prosperous one, stock up with a full line of **COES WRENCHES.** Take our word for it, you will have no trouble in disposing of them, for the

GENUINE COES WRENCH

has a seventy-year-old reputation back of it, and purchasers have learned that our guarantee means something.



TO THE WRENCH BUYER

IF you want to avoid much trouble and bother during the New Year, insist upon having the

GENUINE COES WRENCH.

There are many imitations, which almost "look the part," but be sure you get the one with the star trademark. It is the mark of quality.

THE GENUINE COES

is made of steel castings, hardened by our special process, and is 30% stronger than any imitation.

SEND FOR THE WRENCH BOOK

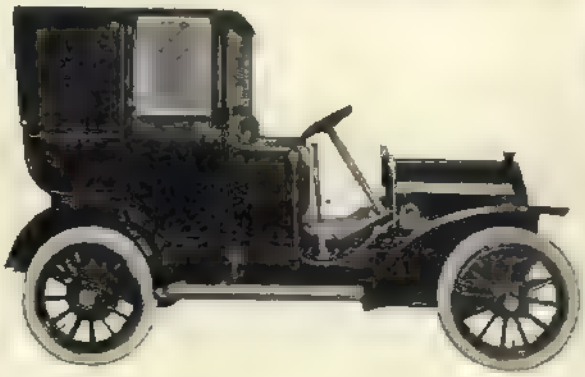
COES WRENCH COMPANY

WORCESTER, MASS.

New York Agents

J. C. McCARTY & CO., 10 Warren Street, N. Y. City
J. H. GRAHAM & CO., 113 Chambers Street, N. Y. City

Garford



IF a Parliament could be called of all the expert automobile builders in the world to vote on the detailed specifications for an orthodox gasolene car, we believe that the composite of their judgment would be an exact duplicate of the Garford.

Some would quarrel with the majority on one detail, some on another.

But a Garford car would be the net result.

The Garford avoids "original" features. There is probably nothing in the car which is not in the majority of other successful cars all over the world.

ADDRESS

Eastern Inquiries: GARFORD MOTOR CAR CO. OF N. Y.
No. 1540 BROADWAY, NEW YORK CITY

Western Inquiries: GARFORD MOTOR CAR CO OF CLEVELAND
No. 1372 EAST 12TH STREET, CLEVELAND

THE GENUINE COES will not only protect you against unnecessary labor, but against tearing the corners off nuts, slipping of wrenches, and other evils common to ordinary kinds, but unknown to the COES.

It is the strongest and best wrench on the market to-day, and will give you a lifetime of good service.

Look for the Star 91 trademark; none are genuine unless so marked. This trademark means that 70 years of experience has contributed to make the COES the satisfactory tool that it is to-day.

Don't forget that the GENUINE COES is made of steel castings, hardened by our special process, and is 30 per cent. stronger than any imitation.

Send for the Wrench book.

Coes Wrench Company

WORCESTER, MASSACHUSETTS

New York Agents

J. C. McCARTY & CO., 10 Warren Street, New York City
J. H. GRAHAM & CO., 113 Chambers Street, New York City

WOODWORTH LEATHER TUBE

Made of pure rubber and specially tanned chrome leather lapped and cemented along the inner circumference. The leather is very strong selected stock, and makes an almost perfect protection for the rubber tube against bad shoes and lugs It cannot crack and will not stretch under any condition of weather. The Woodworth Leather Tube is not affected by pin holes or breaks in the shoe, and is not easily punctured, but if puncture should occur the leather may be pulled apart, the tube patched and the leather cemented down again by ordinary cement. The Leather Tube will not stick nor tear, cannot be pinched nor chafed. It never leaks except when punctured. A thousand small leaks other than punctures or bursted tires can be prevented by using Woodworth Leather Tubes. Sizes 26 x 2½ to 36 x 5. Prices $6.75 to $22 50 each. Write for catalogue.

Costs no More Than Other Tubes and Less than Some

LEATHER TIRE GOODS CO., Newton Upper Falls, Mass.
New York Store, 1662 Broadway

"The greatest invention for the gasoline engine."

REMEMBER
WE GUARANTEE
FOR
"THE SCIENTIFIC CARBURETOR"

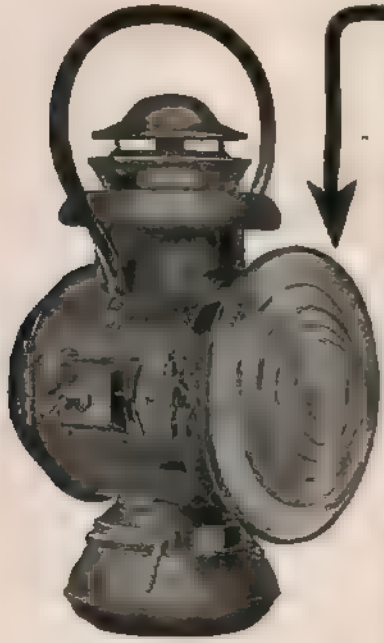
25 Per Cent. More Everything

Power, Speed, Economy, Flexibility, etc.

30 DAYS FREE TRIAL

(Money back if you want it.)

The E. W. Stevens Company, Inc.
EAST NEW MARKET, MD.



HAM'S TOURIST

See That Lens

It is very powerful, but if you place a candle behind it the results would be very unsatisfactory, therefore the most perfect principle of reflection and projection is useless with a poor light, but the more intense the light the greater the results. This is where our "Cold Blast" principle comes in. It produces a brilliant and intense white flame, which combined with the perfect reflection of our lamps and this powerful lens, throws an immense, strong, penetrating light that you can always depend on.

If you equip your car with a pair of Ham's Tourist Lamps, you'll find that it will not be necessary to use your acetylene lamps very often. They are preferable to acetylene lamps for city driving, as they do not give that blinding, glaring light which is so objectionable and still the light produced is strong enough to serve you with entire satisfaction at any time, regardless of the condition of weather or roads.

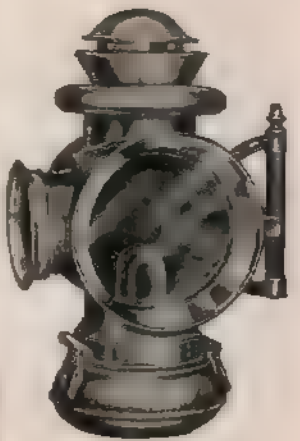
HAM'S "COLD BLAST" Automobile Lamps Are Built for Service

How About Your Tail Lamp?

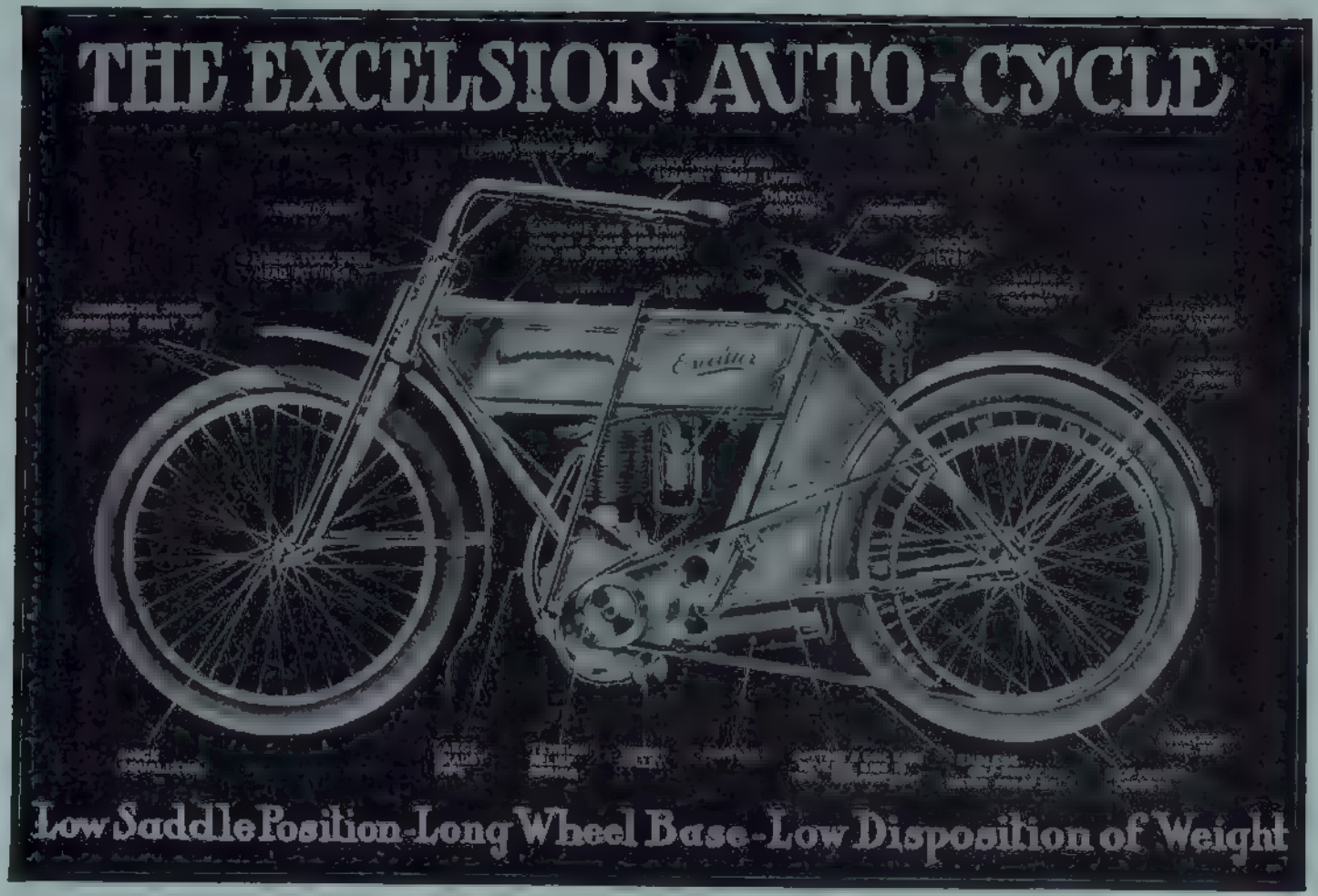
No doubt you have experienced the trouble usually connected with unreliable tail lamps. If so you will appreciate the good features of a Ham Tail Lamp more than ever. When you have a Tail Lamp on your car that you know is going to stay lit when you light it, you experience a lot of satisfaction, I'll tell you, and you'll find that pleasure will be all yours if you equip your car with HAM'S LAMPS.

Specify and insist on getting HAM'S LAMPS. You'll not regret it as they are guaranteed to give satisfaction. Also send for one of our New Catalogues. Address Dept. D.

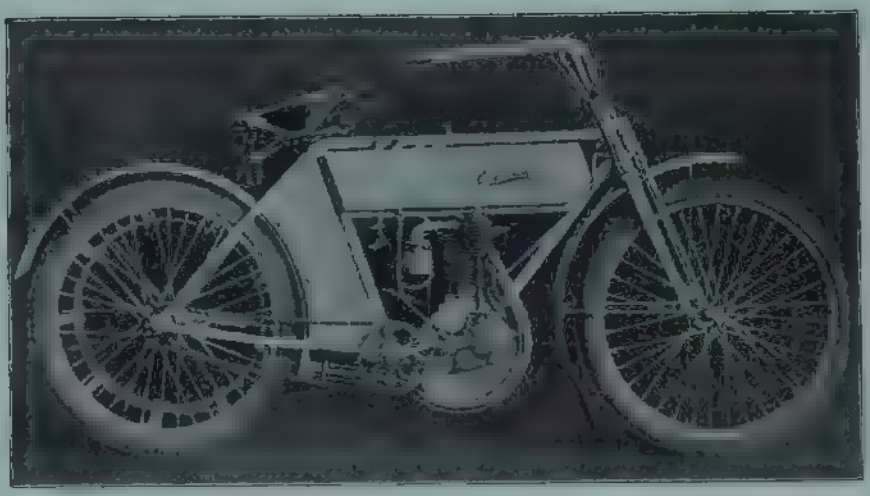
C. T. Ham Mfg Co.
ROCHESTER, N. Y.



HAM'S VIGILANT TAIL LAMP


THE EXCELSIOR AUTO-CYCLE
Excelsior
Low Saddle Position-Long Wheel Base-Low Disposition of Weight

The Excelsior Auto-Cycle



A Revelation of Motorcycling Comfort

The great bugbears of motorcycle riding heretofore have been the jolts and jars that racked your bones, and the stiff and cramped, unnatural position, in which you had to sit.

We've cut out all of that. We built 26 different motor-cycle frames before we finished the one you see. But we got what we went after.

You sit on this motorcycle just as easily as you sit in a swivel chair at your desk, or in a comfortable chair at home. Sit down in a good arm chair, put your hands on the arms and your feet on the floor, and you'll have almost identically the same position that you have when you mount the EXCELSIOR.

There is no vibration from the engine at all, and the road vibrations are all absorbed before they get up to you. The drawback of engine vibration, so common in motorcycles, is caused by lack of proper balance of the engine and proper arrangement of the engine parts. We have secured an ideal balance and a perfect harmonious adjustment of all the parts so that with the EXCELSIOR there is absolutely no engine vibration at all.

The ordinary road vibrations caused by the inequalities of the road are taken up by our specially designed Spring Fork which is so cleverly arranged that it is not only strong enough to take care of the most violent shocks, but also delicate enough to absorb the lighter vibrations as well.

This feature of Ease and Comfort in riding is a most important one. It puts the EXCELSIOR in a class by itself. But it is only ONE of many points which distinguish the Excelsior from all others.

That dealer who wants the BEST money-making proposition wants the EXCELSIOR.

Write for terms and Auto-Cycle Booklet C.

EXCELSIOR SUPPLY COMPANY

ESTABLISHED 1876

233-235-237 RANDOLPH ST., CHICAGO

Look at This Great Machine!

Take its tremendous points of advantage, one after the other, and STUDY THEM—its new engine—its new transmission—its tension idler—its spring fork—its low disposition of weight—its comfortable riding position. Grasp these tremendously vital points, and let them sink into your mind.

No other machine was ever made like this. No other machine has ever been able to cut out vibration as this one does—or to give such absolute control of speed or such perfect transmission—or such absolute ease and comfort to the man on the saddle.

It is a revelation of motoring possibilities. It means a big increase in motorcycling interest—means that HUNDREDS of men will buy THIS machine who never would have thought of riding a motorcycle before.

Think what these things mean to a live dealer! Think what they mean to the man who CONTROLS the EXCELSIOR in his locality! Think what it means to have on sale the KING OF THEM ALL, a machine so superior in EVERY WAY that competition doesn't have any chance at all!

Territory is being allotted fast. Don't delay.

Read the Next Page

The Excelsior Auto-Cycle

A New Achievement in Speed and Power Control

By a unique combination of new mechanical features we have been able to make the EXCELSIOR AUTO-CYCLE absolutely obey its rider's slightest wish as no other machine CAN do.

When you want the belt to slip on the driving pulley, it slips and when you want it to stick, it absolutely sticks. Our combination of tension-pulley-idler and tension-relief-spring attend to that. This tension pulley is placed close up to the driving pulley so that it does its work, NOT by tightening the belt and starting a strain from pulley to hub, but by merely curving up the belt around the driving pulley, giving it a hugging surface and excluding the air.

Wet or dry weather—high or low speeds—hills, curves, or straight and level roads—spacious boulevards or traffic glutted streets they're all the same to this machine. Its splendid power is so perfectly harnessed so absolutely under control, that it responds AT ONCE to the slightest touch of your finger tips You can race with railroad trains at fifty miles an hour or you can creep along at the walking gait of a tired horse.

And this SUPERB CONTROL is only ONE of the many extraordinary features that make the EXCELSIOR AUTO-CYCLE the greatest motoring machine ever built.

The dealer who controls this machine in his locality will have an unusual opportunity, for he will have a proposition that competition simply CAN'T TOUCH

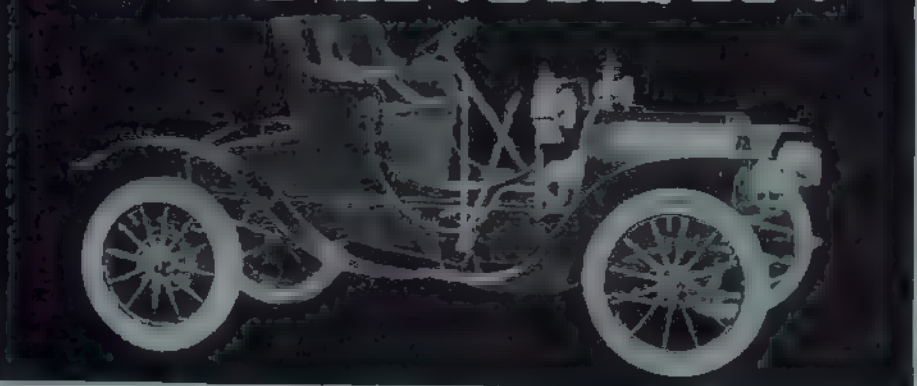
Write for terms and Auto-Cycle Booklet C.

EXCELSIOR SUPPLY COMPANY

ESTABLISHED 1876

233-235-237 RANDOLPH ST., CHICAGO

FRANKLIN



Type G Runabout $1750. 16 horse-power. Shaft drive. 40 miles an hour. Strong, swift, comfortable, always ready.

Common-sense must settle the motor-car question. And Franklins above all others are common-sense automobiles.

They are the best examples of light-weight and comfortableness combined with strength and high power. And they work all the year.

"Every pound costs money every time you move."

What's the use of power that you can't use?

What's the good of a heavy complicated machine that has a job lugging itself—say nothing of passengers?

Where is the sense of paying big bills for tires, gasoline, oil and repairs, and getting no proportionate return?

Useless weight is the most expensive thing you can put into an automobile. Every pound costs you money, every time you move—**money.**

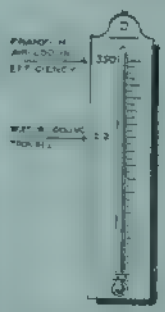
Isn't it common-sense to have less weight and more ability?

Franklins have the carrying-capacity, the durability, the power and the go. Franklin engines get more work out of the fuel than any other gas engine. They deliver more power to the rear wheels. They are not handicapped with a heavy plumbing-system nor a stiff heavy steel frame that jars away the power on rough roads.

FRANKLIN

Type G Light Touring-car $1850. 16 horse-power. 35 miles an hour. Handy, stylish, safe, sensible. The ablest light touring-car ever produced.

Franklins are the strongest automobiles too.



No "dead line" to Franklin air-cooling.

Weight alone doesn't make strength. Quality of materials, good workmanship and construction count. Franklin construction is scientific. Every piece of material is chosen, calculated and treated to obtain the utmost strength combined with light weight.

The Franklin drive-shaft for example weighs only a quarter as much as the ordinary drive shaft; yet it is twice as strong. Our laboratory discovered how to treat chrome-nickel steel so as to raise its elastic limit from 97,000 to 171,000 pounds.

This strong light-weight principle holds all through. It gives unsurpassed endurance. It increases speed and climbing-power. It makes Franklins easy to handle, agile and safe.

No water-cooled engine can be as efficient as a Franklin.

Why? Because water boils and evaporates at 212°. When the jacket of a water-cooled motor becomes empty, it is a regular "hot-box"—holds the heat instead of carrying it away. The temperature quickly goes above 450°. The cylinder-oil burns and the pistons stick. You dare not run hot enough for full efficiency.

A gas engine makes power by turning gasoline into heat. The hotter you can run it without igniting the lubricant, the more power you get out of your fuel. The Franklin engine runs at a constant flange-temperature of about 350°. Always too low to burn the lubricant, always hot enough to get the best possible work out of the gasoline.

Another thing, water freezes at about 30°. Any minute something may burst. In winter a water-cooled engine is either a nuisance or out of commission.

You can't freeze a Franklin.

Type D Touring-car $2850. 5 passengers. 38 horse-power. 45 miles an hour. Big, roomy, powerful, handsome. All that 4-cylinders can give. As a runabout $2850. Landaulet, $4000.

Franklin air-cooling has no such limitations. No danger lines. It neither over-heats nor under-heats. It cannot leak, evaporate, burst nor freeze.

It gives steady unfailing power on all kinds of roads, in all kinds of weather, and is ready for work 365 days in the year.

Franklin comfort is built into the very frame of the machine

That is the only way to get it.

Before you buy a motor-car try this experiment:

Try this experiment.

Strike a bar of steel, and feel it vibrate. It shivers from end to end,—jars you like an electric shock. But strike a bar of wood of the same dimensions, and you feel no such shock.

Steel transmits the vibrations; wood absorbs them.

That is why a steel-frame motor car can never be wholly comfortable on rough roads or long trips

The Franklin wood-frame—stronger than steel, and suspended on four full elliptic springs—gives the only perfect automobile comfort. It not only saves the passengers; it economizes power and lengthens the life of the machine.

Look into these records.

No motor car but the Franklin ever ran 95 miles on 2 gallons of gasoline; or was ever driven from San Francisco to New York in 15 days, 2 hours, 18 minutes; or from Chicago to New York in 39 hours and 53 minutes.

Can any water-cooled engine demonstrate such efficiency? Can any heavy machine show such sustained power and road ability? Can any steel-frame automobile or its passengers stand such going? Can any other motor-car approach these records?

FRANKLIN

Type H 6-cylinder Touring-car $4000. 7 passengers. 42 horse-power 55 miles an hour. As a runabout, $4000. Limousine, $4200.

Six-cylinder engineering at its best. With tremendous power and a smooth, steady pull, free from jar or vibration. As manageable as a runabout. Weighs only 2500 pounds, yet the strongest motor-car of its capacity. And with an easy-riding quality that makes its swiftness enjoyable on all roads. The limit of automobile development to date.

None ever did.

The Franklin Type D, during the Chicago Show, ran 180 hours (equal to 3500 miles) without a stop or miss; most of the time in a hot sales-room with no draft but the machine's own fan. How is that for Franklin air-cooling?

The cost of a motor car is different from the price.

You can buy a lower-price automobile than a Franklin. But not a lower-cost one.

You can't buy one easier on tires, because of Franklin light-weight; nor easier on gasoline, because of the efficient motor; nor easier on repairs, because the light-weight is combined with enduring strength.

You can't buy one that gives more days' work in a year, nor more years of service for the money.

Over 5000 Franklins are in active use. Many of them 5 years old. The first Franklin—made five years ago, is still giving good service. How many 5-year old automobiles of other makes do you see in use to-day?

Measuring total cost by total service Franklins are the cheapest automobiles you can buy.

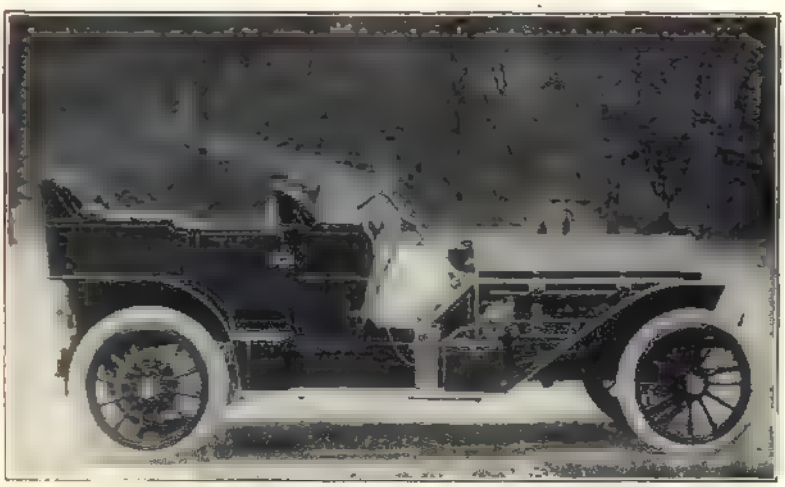
Any Franklin dealer will give you a convincing demonstration. Write for the 1908 catalogue.

H. H. Franklin Mfg. Co., Syracuse, N. Y.

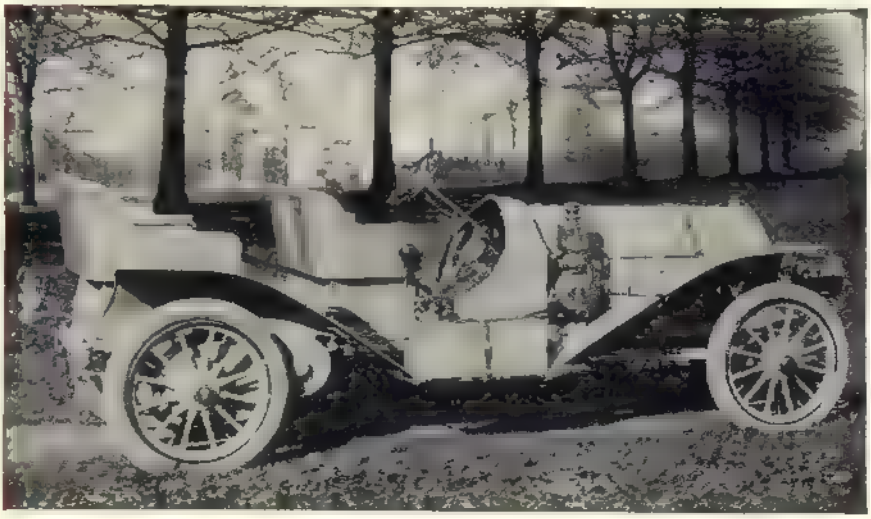
Member Association Licensed Automobile Manufacturers

THE TWO 1908 MODELS OF THE

Great Chadwick Six



TOURING CAR Price, $5,500



TOURABOUT. Price, $5,500

Full details of these two cars will be sent on application. We concentrate all of our efforts and energies on these models, the chasses of which are identical.

Chadwick Engineering Works

3207 Spring Garden St. Philadelphia

SEE THREE FOLLOWING PAGES

Great Chadwick Six

IS THE EXCLUSIVE CAR OF AMERICA

$5500

Touring Cars

Tourabouts

Runabouts

Everywhere it is becoming fashionable to own one, because the many exclusive features and points of superiority appeal quickly to the well-informed and intelligent buyer who demands something which is to good to become common.

QUALITY

is a greater consideration with us than quantity, and our output is therefore limited in number, which enables us to give the most careful attention to the manufacture of each and every

Great Chadwick Six

If it were possible to build a better automobile, we would do so, regardless of expense, but we have already incorporated in its design and construction the most costly material and methods, on the theory that to make the best automobile it is necessary to use the best raw materials. We do not first make the list price and build the car to suit it, but we design and manufacture the car and then make the price suit the quality. If it were possible to put one or two thousand dollars more into the construction of the automobile and make it better, we would do so and advance the price accordingly, for the

Great Chadwick Six

is and always will be the finest automobile that can be built. Therefore it should, and does, appeal to an exclusive class of buyers.

THE QUALITY OF THE

Great Chadwick Six

gives to the buyer a source of automobile satisfaction that cannot be had with other types of cars. *It is the fastest, most powerful, safest, most easily controlled, high-powered touring car in the world.* These are the claims which we make and are prepared to prove in comparison with any and all automobiles made in either America or Europe, and we suggest to the buyer the desirability of selecting the roads over which these tests are to be made. If any automobile manufacturer or dealer refuses to compete in this practical road demonstration, it should be sufficient evidence to you that they are aware of the superiority of the

Great Chadwick Six

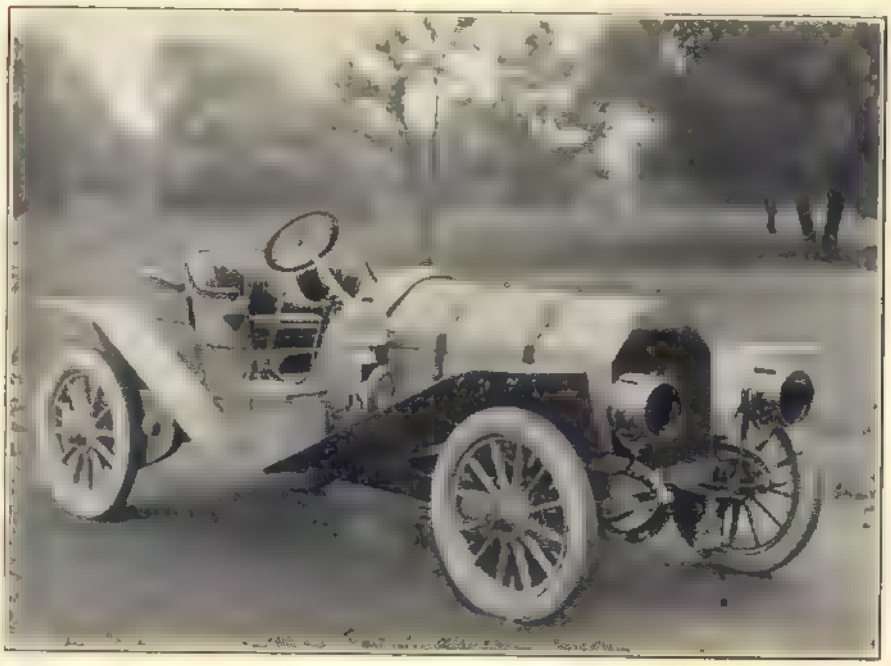
Notwithstanding the fact that it is easily the most powerful stock car in the world, it will render satisfactory service for a period of years, and its ability to go faster or slower and to always go and go more smoothly than any other motor car are facts which should appeal to exclusive buyers of high-priced automobiles.

There are More Exclusive and Meritorious Features embodied in the

Great Chadwick Six

The Quality Car of America

than can be found in any other two automobiles made in either this country or Europe.



RUNABOUT *PRICE, $5500*

For 1908 we are manufacturing one type of chassis only, to which is fitted several styles of bodies. We confine our efforts to one automobile and the result is the fastest, safest, most easily controlled and highest powered stock car in America. To the well informed buyer the GREAT CHADWICK SIX represents the greatest automobile value in the world.

Our catalog is now ready. Do you want a copy?

CHADWICK ENGINEERING WORKS
POTTSTOWN, PA.

SEE THREE FOLLOWING PAGES

One of the exclusive features of great importance of the

Great Chadwick Six

is the patented Chain Casing

It solves the problem which has been one of the greatest troubles to both manufacturers and users. To obtain a quiet and clean form of drive, automobile makers have been compelled to resort to the shaft and bevel gear with split rear axle. This construction has many disadvantages as it increases weight, decreases strength, adds friction, and frequently results in sagging axles and spreading rear wheels. This very objectionable feature is especially noticeable on cars of over 30 h. p.

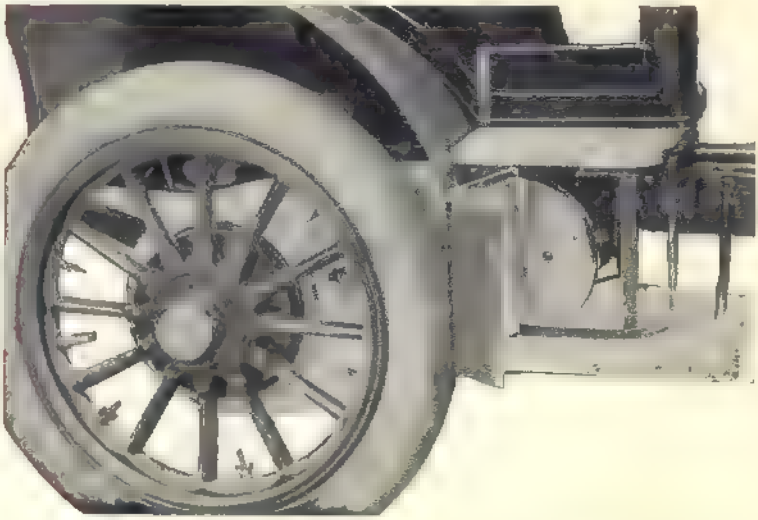
The Chadwick Chain Casing

is not a makeshift cover for the chains, but is a part of the drive proper and absolutely overcomes all the objections of both the exposed chain and shaft drive forms of construction. It is an exclusive Chadwick feature permitting of a solid rear axle, which is necessary to safety and service in high powered cars.

Illustrating how the patented Chain Casing of the

Great *Chadwick* Six

appears when in place.



When the door of the tonneau step is closed the case is almost hidden from view.

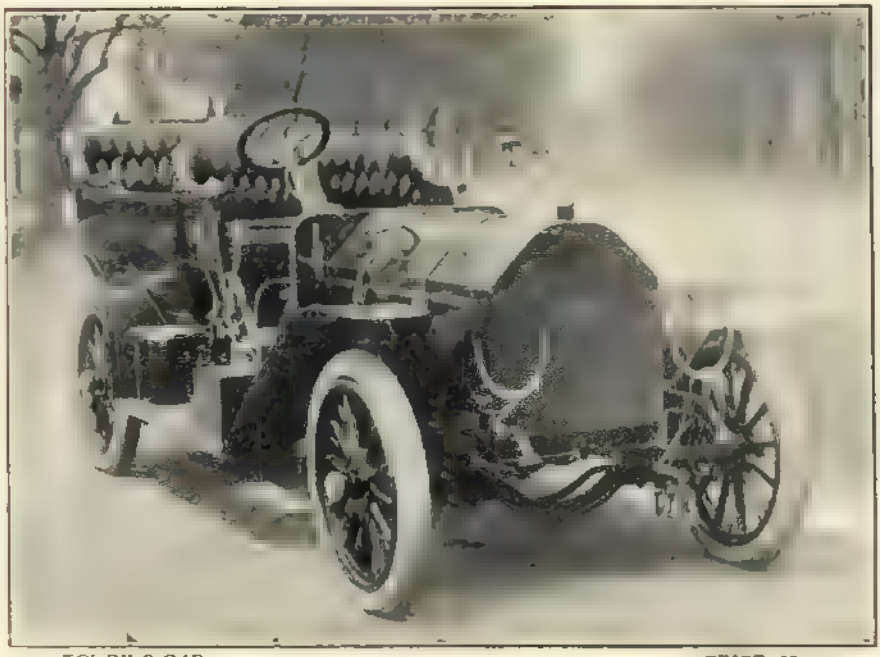
Outside view showing protected brake band

Inside view of casing showing brake lever

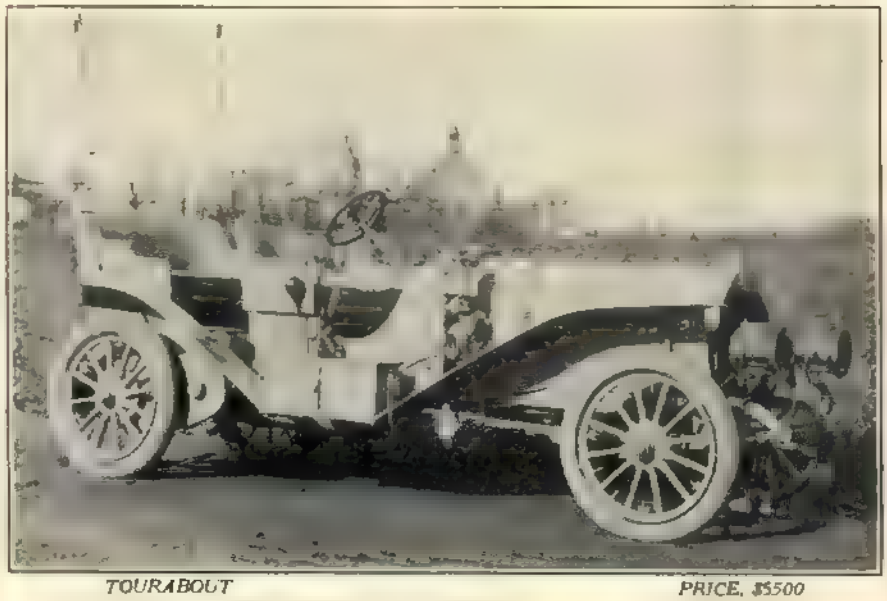
This and other exclusive Chadwick features are detailed in our new catalog, a copy of which will be sent free upon request.

TWO 1908 MODELS OF THE

Great Chadwick Six



TOURING CAR PRICE, $5500



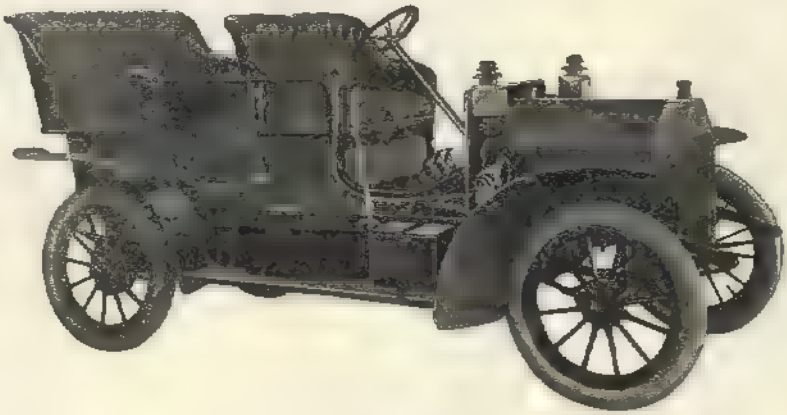
TOURABOUT PRICE, $5500

CHADWICK ENGINEERING WORKS POTTSTOWN, PA.

Locomobile
THE MOST RELIABLE AMERICAN CAR
The New 1908 Type I Car 40 HP
Four Speeds, Selective
36-Inch Wheels, 7-Passenger
$4750 Top Extra
Other Models $2900 Up
The Locomobile Co. of America, Bridgeport, Conn.

The "AUBURN"

The Most for the Money



OUR MODEL G

5-Passenger Touring Car. $1350.00

SPECIFICATIONS:

Motor—Two-cylinder double opposed 5¼x5, 24 H. P., all parts accessible. Planetary transmission. Schebler carburetor. Splitdorf coil. Mechanical oiler with sight test. Steering device latest improved nut and screw type with 16-inch wheel. Control levers on top of steering wheel. Radiation 143 feet. Pressed Steel Frame. Full elliptic springs in rear, half elliptic in front. Wheel base 100 inches. Tires 32x3½.

Built for Power, Speed, and Easy Riding.

Built for Economy of Running and Cheapness of Maintenance.

Built to meet the popular demand for an all purpose car at a popular price—one that has sufficient power and proper construction to carry a load over all kinds of roads in all kinds of weather with the least expense and least trouble.

To the Dealer:

Do you realize that the Automobile Dealer who is meeting with the greatest success is the man who is handling a two-cylinder touring car with good power, properly constructed and of good appearance, which he can sell at a price within the reach of the average buyer?

Do you realize that the automobile business has been just a little over done by both the manufacturer and buyer and that conditions will soon adjust themselves to a different level and the dealer who is on the market with a popular priced car, HONESTLY BUILT, strong, POWERFUL, speedy and easy riding, will be doing the business and making the money while the other fellow isn't making enough to pay his wash-boy?

How about it, Mr. Dealer? Do you want to get in line with an agency for a car of this class which has been proven a decided success for five consecutive years of successful manufacture?

Inspection of the specifications of the AUBURN will prove its points of superiority and one glance at the car itself will convince you that we really are in a class by ourselves and are offering THE MOST FOR THE MONEY.

SELL THE **AUBURN**

Made at Auburn, Indiana, by the

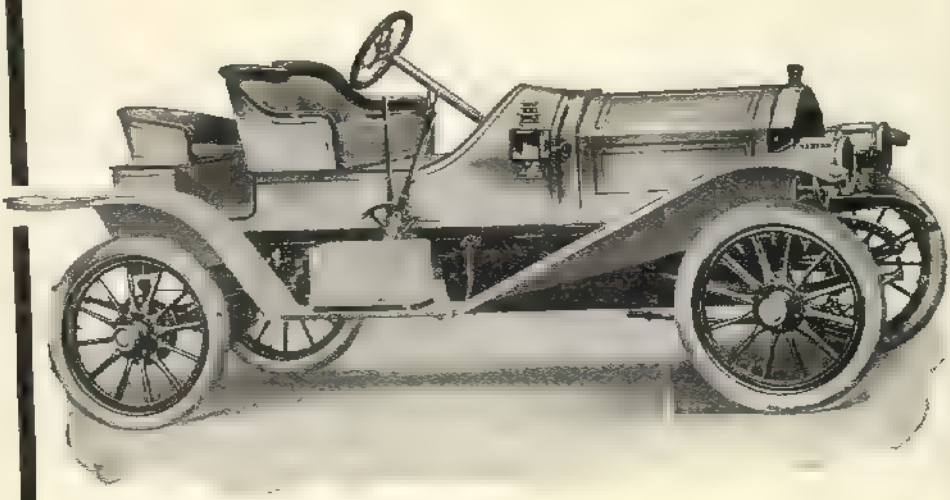
Auburn Automobile Company

Chicago Agency—Adams & Engs, 1712 Michigan Ave.

THE

"Blomstrom Thirty"

The Most for the Money Ever Offered



1908 Models Now Ready

Touring Car, 5 passenger - - $2500
Runabout, 3 passenger - - - $2100
(SAME CHASSIS AS TOURING CAR)

Specifications:

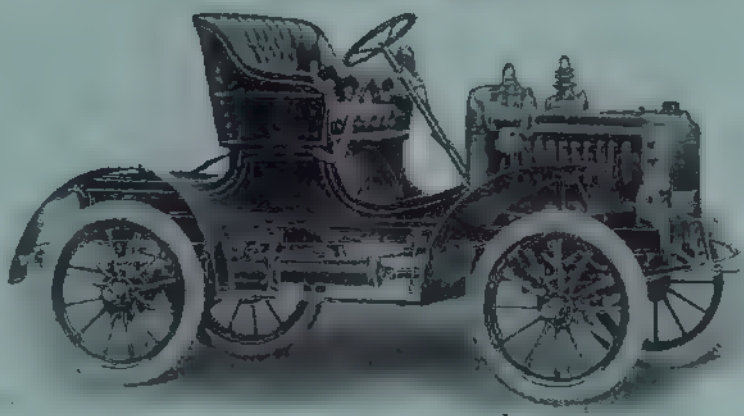
110 inch Wheel Base Tires—32 x 3½ in.
Motor—4-cylinder, vertical, 4-cycle, water cooled, 30 B. H. P. at 1000 R. P. M. **Blomstrom's own design—latest and best.**
New Clutch—**Blomstrom's own design.**
Selective Sliding Gear on Hess-Bright Ball Bearings.
Tempered Nickel Steel Gearing.
Bevel Gear Drive. Front Wheels on Ball Bearings.
Complete Equipment—Mats, Horn, Tools, 5 Lamps—ready for the road.

Representative wanted in unoccupied territory. IMMEDIATE DELIVERIES.

Blomstrom Mfg. Co., Detroit, Mich.

This is the Car Whose Record Founded the Greatest Chain of Automobile Factories in the World

The 14 H. P. "Maxwell" TOURABOUT



14 H. P., $825

The universal acclaim with which this car was welcomed in the beginning and the uniform satisfaction it has since given has enabled us to enlarge our plant at Tarrytown, New York, and to establish factories in Chicago, Pawtucket, Rhode Island, and New Castle, Indiana, the latter being the greatest automobile factory in the world.

The foresight of Mr. J. D. Maxwell in designing cars of extreme simplicity and reliability at prices within the means of the average citizen has given the Maxwell line a flying start on all competitors.

The important features which were first introduced on this "Maxwell" Tourabout have since been adopted by leading manufacturers of cars costing three to ten times as much.

The unit construction and three point suspension made its first appearance in America on the "Maxwell" Tourabout.

The "Maxwell" thermo syphon system of radiation which eliminates the use of pumps is the surest and simplest of cooling systems.

Among the "Maxwell" features may be mentioned the shaft drive, multiple-disc clutch and all metal bodies.

That such important features should have appeared first on the "Maxwell" 14 H. P. Tourabout which costs $825 is evidence of how far in advance the "Maxwell" line is.

Read the three following pages.

This is the 20 H. P. Double Cylinder Touring Car which has further enhanced the name of

"Maxwell"

20 H. P., $1450 (fully equipped

As a family car—a utility, this second exponent of the "Maxwell" line has established a record of unparalleled efficiency for cars of anywhere near its price $1450, fully equipped.

The chassis is similar in type to that of the Tourabout, but larger, the wheel base being 11 inches longer and the cylinders 5 inch bore and stroke.

Also the transmission is sliding gear, instead of planetary.

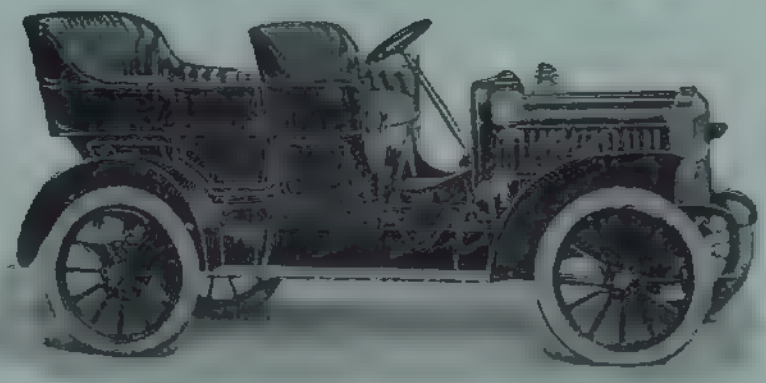
Simplicity of mechanism and ease of control make this the ideal car for those who are not mechanically inclined, yet whose income does not admit of the services of a chauffeur.

Economy of maintenance is of extreme importance in purchasing a car. The car which "eats itself up" in running expense is not the car for you. The reputation of the entire "Maxwell" line for highest efficiency at lowest consumption of gasoline and battery current, to say nothing of the "Maxwell" facility for keeping out of the repair shop, is an item not to be overlooked.

Read the preceding and two following pages.

This is the First Four-Cylinder Car of Proven Efficiency to be Offered at a Price Within Range of the Great Motor-Buying Public---The New 24 H. P.

"Maxwell"



24 H. P. TOURING CAR, $1750

If you are a dealer you must realize that now of all times when financial conditions are abnormal, that "Maxwells" are *the* cars that will make money for you

If you are a prospective motorist, I want you to know that this "Maxwell" will successfully take the place of the high-priced car you were going to buy before the so-called "panic."

It embodies all the famous time-tried "Maxwell" features—three-point suspension, multiple-disc clutch, shaft drive and thermo-syphon radiation

That a car of this type can be sold at such a price—$1750—is due to the fact that more of these cars will be manufactured during 1908 than has ever before been the case in cars of this size and power. More raw material has already been purchased **for its production than for that of any other 1908 touring car**

This car offers all the efficiency of cars costing two to three times as much—in fact we know of but one car which offers greater possibilities and that car is de**scribed on the following page.**

This is the Record of the Great

"Maxwell"

Forty—Price $3,000.

Read What It Has Done.

No car, whatever its price or nativity is the superior of this famous model whose records have established the reputation of Mr. J. D. Maxwell as preeminent among motor car designers on both sides of the Atlantic.

This is the car that won the Deming Trophy in the 1906 Glidden Tour.

This is the famous pilot of the 1907 Glidden Tour—the real victor.

The motor is a four-cylinder vertical, 5 in bore, 5 inch stroke, 40 H. P.

The transmission is sliding gear giving three speeds forward and one reverse—direct drive on the high.

All appointments are the most luxurious procurable and nothing has been omitted to make this *the* car for the most exacting purchaser.

It costs $3000.

A ride in this or any member of the "Maxwell" line will convince you that "Maxwell" efficiency at "Maxwell" prices cannot be duplicated. That's why we call a demonstration a "Maxwell convincer."

Address Dept. 7.

Benj. Briscoe *President.*

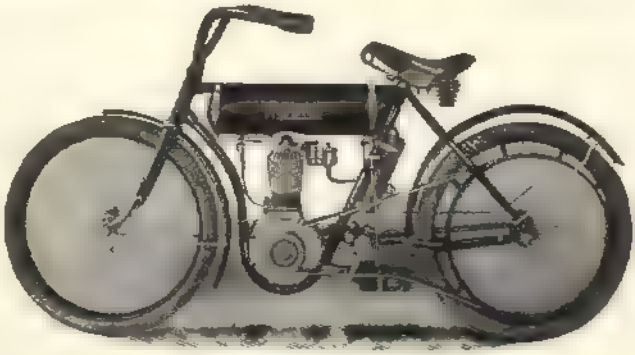
Maxwell-Briscoe Motor Company

Members A. M. C. M. A.

55 Duane St., Tarrytown, New York

FACTORIES

Chicago, Ill. Pawtucket, R. I. New Castle, Ind.



At the Recent Chicago Motor-cycle 414 Mile Endurance Run

30 MACHINES STARTED
8 MACHINES FINISHED.

One-Fourth of the TOTAL ENTRIES FINISHED.

4 MERKELS STARTED
3 MERKELS FINISHED.

Three-Fourths of the MERKEL ENTRIES FINISHED.

AT THE START, ONE out of every eight of the machines were Merkels.

AT THE FINISH, THREE out of eight of the machines were Merkels.

Isn't that convincing?

You can depend upon it,—the Merkel is always there at the finish.

The 1908 MERKEL has the same dependable qualities and many more.

The universal acceptance and recognition accorded it at the recent New York show, places it as one embodying more new, original and exclusive features than any other exhibited.

The live dealers must give their customers the latest and the best they can produce, for the buyers of motorcycles today demand it. You can supply their wants with the 1908 Spring Frame Merkel.

It possesses COMFORT, SPEED, Perfect CONTROL, DEPENDABILITY (Magneto Ignition), SMOOTHNESS of OPERATION, (BALL BEARING MOTOR) and the many other requisites to complete a perfect Motor-cycle.

Mr. "Dealer," are you a live one? If so, you had better write.

MERKEL MOTOR COMPANY,

1098 26th AVENUE, :: :: :: MILWAUKEE, WIS.

OLLIER & WORTHINGTON, Pacific Coast Representative, 1030 S. Main St., Los Angeles, Cal.

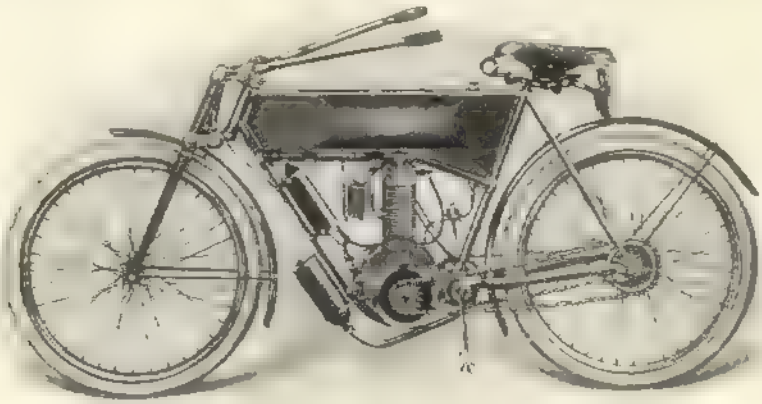
Representatives for New York, Jersey City and Long Island Mr E J Willis Co., 8 Park Place, New York City, N. Y. Representatives for Brooklyn: John Pfleiger 1664 Bushwick Ave., Brooklyn, N. Y. Representatives for Cook County, Ill I H. Whipple 260 W. Jackson Blvd., Chicago Ill.

1908 Thor Motorcycle

The Thor motorcycle outfit for 1908, manufactured by the Aurora Automatic Machinery Co., Aurora, Ill., has been improved in several details, and represents the added experience of an extra season's use of this well known outfit.

The following description of the Thor 1908 outfit applies also to the complete machine.

The motor, placed in a vertical position, is supported at three points, and is thereby amply secured to resist the strain of driving. The carburetor is lowered, and this leaves the head and upper part of the

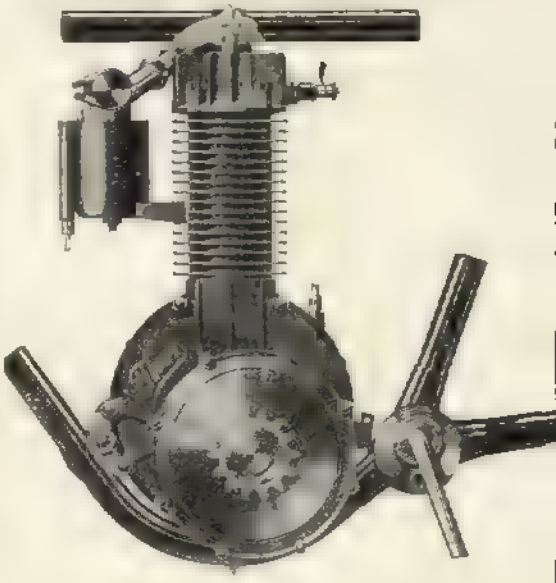


The "Thor" Motorcycle. The Aurora Automatic Machinery Co. is now furnishing this complete machine as a regular stock model as well as the well known "Thor" unassembled outfits and parts. Three other models are also offered

The 1908 Thor motor and transmission is constructed so that the base and transmission are one mechanical unit; the latter, part of the motor itself, the same as the cam shaft or any other essential part. The transmission is practically one piece which includes in itself the ball bearing surfaces, the reducing gear, and means for attaching sprockets. The internal gear mechanism reduces the friction about 70 per cent. Particular attention is given to hardening the gears, and ball races and balls are of such size as to reduce the wear and make it practically imperceptible after long and hard usage. It follows naturally that where there is slight friction and no wear the noise is decreased.

Besides the complete unassembled outfits the Thor people are this year marketing complete machines direct, and include in the 1908 line four distinct models. Model 7 is a single cylinder, 2¼ H. P., chain driven machine, listing at $200. Model 8 A, is a 3 H. P., single cylinder machine with gear transmission and lists at $225. Model 8 B, is the same as 8 A, excepting that it has a spring fork. Price is $250. Model 8 C is a twin cylinder machine of 5 horse power, has gear transmission and spring fork and lists at $300. A magneto will be fitted to any of these models on special order at extra cost. The equipment is of the best and includes a full complement of tools, pump, repair kit, etc. The battery, oil and fuel compartments are all in one tank, which is placed between the top tube of the frame and an additional truss tube which runs across above the motor

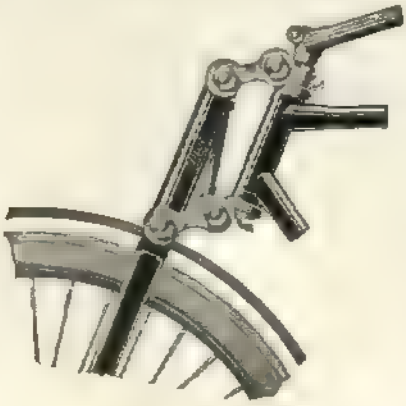
cylinder more exposed to the cooling air current, as well as making the gasoline pressure more even, whether the tank be full or empty. The position of the motor does away with a number of obstructions that formerly retarded cooling. Improve-



1908 Thor Motor, showing its position in the frame.

ments have also been made in valve mechanism and some dimensions. The results of the improvements in the 1908 Thor motor and transmission other than those already enumerated may be sum

marized as follows: Increase of power, so that the motor now develops full three H. P. with ordinary speed; increase in bearings on crank pin makes 30 per cent. increase in bearing surface of the lower connecting rod; 10 per cent. in short end of crank pin; increased oil space in base; drive absolutely dust proof and self-lubricating; transmission and driving sprocket can be removed without effecting adjustments of the motor; by use of the Thor hanger the power chain and pedalling chain can be adjusted independently.



Thor Spring Fork.

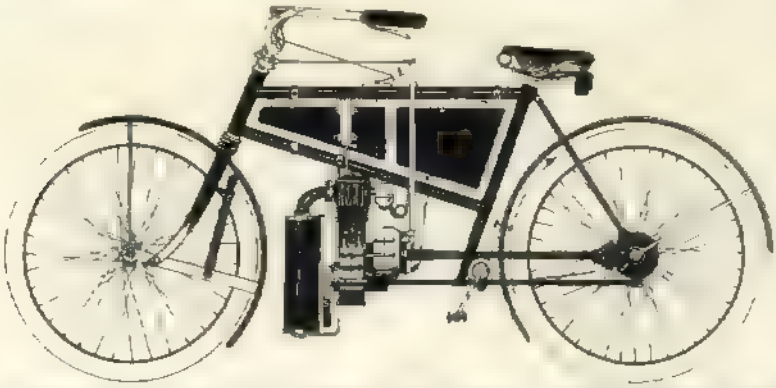
The Thor spring fork is not an attachment to a fork but a complete fork in itself. It consists of a one-piece stem and lower connection with triple keyed top connection. Four levers connect the fork stem of the frame with the parallel extending fork sides, making eight connecting points which are of ample size and ball bearing. These can be screwed up rigidly, eliminating wear and adjustment and frequent oiling. The levers forming an offset from the fork, the fork sides can be made straight which in itself reduces strain; and there is no necessity of trussing.

The cushion is derived from a piston and cylinder arrangement supplemented by coil springs. The piston has a packing which acts as a shock absorber and rests on a coiled spring. Besides, a pneumatic cushion is effected and a severe shock is principally taken care of by air. There is also a spring buffer used as a safety device in particularly severe recoils. This cylinder, arranged for absorbing the shock, is hinged diagonally on the head and fork bearings and can be detached without taking the work apart. This construction of the fork being forward from the head allows the controlling mechanism to be carried from the center of the head.

"Delaware" Shaft Driven Motorcycle

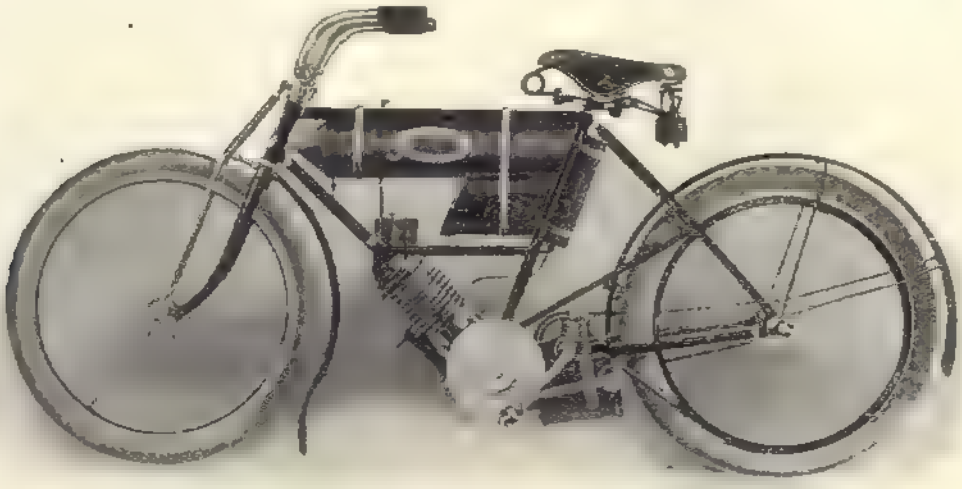
W. J. Grube, a mechanical engineer, who has been connected with the motor car trade in various capacities for some years, and has designed and marketed both engines and complete cars, has lately turned his attention to motor cycles, and for a year past has been thoroly trying out his finally adopted design. This motor cycle is called the "Delaware," and is made by Grube Motor Co., of Delaware, Ohio, of which Mr. Grube is general manager, A. J. Willey is president and S. S. Blair, secretary-treasurer.

Some of the unusual features of this machine are noticeable at a glance, such as the shaft drive and the peculiar motor suspension. Drive from the motor to the shaft is thru a multiple disk clutch which is controlled from the right handle bar by means of a lever similar to the brake levers on the early types of pedal cycles. The clutch allows a free motor for easy starting and gives a ready and efficient means of keeping the speed of the machine under absolute control, a great advantage in crowded thorofares.



Cross section view The Delaware Motorcycle engine showing multiple disk clutch which is enclosed within gear case on engine Note F & S Annular bearings and clutch arrangement.

The motor, which is of 3 H. P., is mounted fore and aft and the drive is taken off the half-time shaft which offsets the drive shaft sufficiently. The half-time shaft and gears are made sufficiently strong to meet these requirements. The clutch consists of 12 plates made of saw



1908 AUTO-BI

THE CHICAGO SHOW

Proved valuable to the buyer by showing the difference between the Auto-Bi, a machine of well defined and tried out features, and the numerous experimental features shown on our machines.

How Does This Strike You?

A belt that **WON'T STRETCH** and can be run slack.

2½" clincher tires and hollow steel rims.

A full 3 H P. motor. Speed regulated with **ONE** grip which will stay where you put it

Oil-feed adjusted while riding. Auxiliary exhaust port to keep motor cool and increase power.

The original and only spring truss fork. Three ordinary No. 6 dry cells. Fewest parts of any motorcycle built.

Responsible agents wanted in unoccupied territory.

Send for Catalogue.

The Auto-Bi Company

1443 NIAGARA STREET, BUFFALO, N. Y.

New Model D Rainier

Following the past custom of the Rainier Motor Car Company, only one chassis is offered for 1908. This is the design of Mr. J. G. Heaslett, who has charge of the new Saginaw, Mich., plant.

The new factory stands on a tract of over sixty acres owned by the company, the buildings including machine, assembling, test and painting and body-fitting shops, a power house and a separate building for the offices and drafting rooms. All the structures are of brick, built in what is known as mill construction, with glass monitor roofs. On the surrounding ground is a half-mile track for testing.

The grinding machinery is in a separate room, enclosed by glass and equipped with a large suction ventilator for carrying off the dust particles. Thruout the plant the latest and most improved automatic machinery and jigs can be seen, making exact duplication of parts possible.

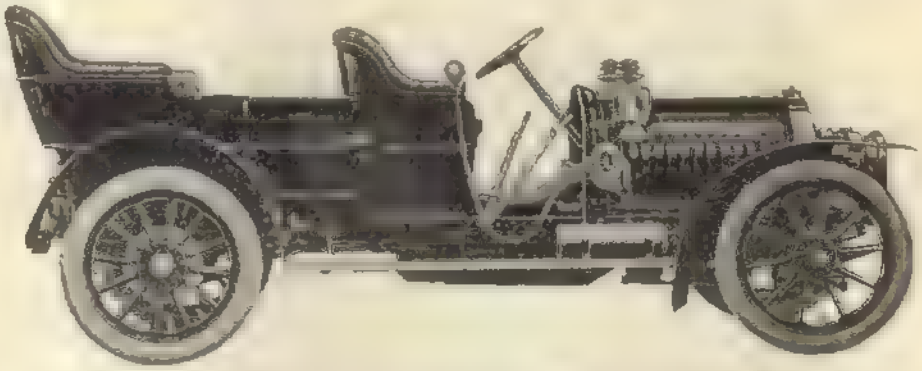


Fig. 1. Rainier Model D Touring Car. Motor, 45-50 H. P., 4 cylinders, 5 x 5¼ cast in pairs with integral water jackets; special make and break ignition from Simms-Bosch low tension magneto [illegible] feed mechanical lubrication; 4 speed forward and 1 reverse change speed gear, direct on [illegible] shafts mounted on [illegible] multiple disc clutch, shaft drive to [illegible] two sets of internal expanding brakes on rear wheels; 36 in. wheels with 4 inch front and 4½ inch rear [illegible] make optional; wheel base [illegible] 9 [illegible] weight [illegible] 20 gallon gasoline tank under the front seat, equipment, 2 headlights, 3 side lights, 1 tail light, generator [illegible] foot rest, tire carriers, trunk rack, tool box, kit of tools, [illegible] jack and tire repair kit; price, with touring body, $4500; limousine, $5750; landaulet, $5800.

The output for 1908 will be kept down to 300 cars, the present capacity of the plant without overtaxing men or machines. The Rainier yearly guarantee system will be continued and it is claimed that nothing but the very best of material is allowed to enter into the construction.

THE NEW MODEL "D."

The new Rainier is known as model "D." This new car is of higher power to meet the popular demand and embodies many desirable improvements, altho the essential characteristics of previous Rainier cars have been retained.

The cylinders have been increased to 5 x 5¼ inches and develop 45-50 H. P. The wheel base has also been increased and is now 119 inches, not so long as to be unwieldly and yet short enuf for easy handling. A drop frame is used and the radiator has been set back directly over the front axle, thus adding to the rakish appearance. The wheels have been increased to 36 inches in diameter.

THE MOTOR

The four 5 x 5¼ inch cylinders are cast in pairs with unusually large water jacket spaces, the jackets being cast integral. A large removable aluminum plate covers the top of each pair of cylinders and acts as an expansion plate in case of a freeze-up and also permits of ready access to the water jackets for inspection or cleaning. The cylinders and pistons are of a special grade of hard grey iron of light but rigid construction, and both are accurately ground and lapped so that the pistons are a perfect fit in the cylinders. All these castings are made in baked molds. The valves are nickel steel forgings, are mechanically operated, interchangeable and located on opposite sides. The valve lifting rods are adjustable in length by means of screws and lock-nuts. The cam shafts with their integral cams are case hardened and ground to shape. Special bronze bearings which have been used on all the previous Rainier models with satisfaction, are used in the 1908 construction. The cam shafts are housed in the crank case. The crank shaft is machined from a solid block of nickel steel, and its bearings, as well as those of the connecting rod, are of large surface and of the inserted type; that is, are bronze shells with babbitt interlining, which gives the advantages of each type of metal without the disadvantages of either.

The engine base is supported directly from the main frame, being webbed to the frame members, the web forming an efficient mud shield. The bearings are held in the upper half of the case, the lower half being simply an oil pan, its lower half

being divided into two compartments by a web for aiding lubrication. Each compartment is supplied with a draw-off plug. The special design of the exhaust manifold can be seen in the view of the exhaust side of the motor. The construction is such that the cross sectional area increases and thus prevents unnecessary back pressure.

LUBRICATION

Oiling is by means of a positive mechanical oiler, gear-driven. Leads supply oil not only to the engine bearings, but also to the magneto and pump shaft bearings. The cylinders and pistons are supplied by means of the splash. The oiler is self-contained and can be easily removed. It is supported on the engine crank case. The half-time gears are enclosed in an oil-tight aluminum case not open to the splash and are packed in grease.

The engine is water-cooled, circulation being maintained by a gear-driven pump of bucket type. The radiator is of the honeycomb type and a large fan is mounted on imported annular ball bearings. This fan is driven by a V-shaped belt and is so mounted on an adjustable bracket that the belt tension can be changed to suit the requirements. The radiator cap is of new design, being elliptical in form, suitable for pouring into from a pail, the top being held by clamps instead of screw threads.

THE CARBURETOR

A float feed carburetor of the automatic type, with an auxiliary air valve controlled from the dash, is used. The mixing chamber is enclosed in a hot water jacket connected with the circulating system. The gasoline flow is by gravity from a 20-gallon tank under the front seat, a strainer being interposed in the line. The intake manifold of Y form is shown in the side view of the motor. The carburetor is controlled by the usual throttle lever on top of the steering wheel and an auxiliary pedal is also fitted. A tickler is provided so that if necesary the carburetor can be flooded without raising the hood. It is claimed the car can be throttled to five miles on the direct drive or speeded up to 50 miles per hour.

Accessibility is one of the features of the motor design and the pump and magneto can both be removed without displacing the half-time gears. Compression relief cocks are not fitted, but a device is so arranged that the exhaust valves can be partially lifted giving the same result, so that the motor can be started without undue effort.

IGNITION

Make and break ignition, the current being furnished by Simms-Bosch low tension magneto, is used. This system has been used by the Rainier Co. for several years, but for 19 8 the method of its application has been improved and simplified. A short piece of wire transmits the current from the low tension magneto to a buss bar placed horizontally on top of the cylinders and connected by means of knife switches with the four spark plug electrodes. When the motor is in operation the electrodes are constantly charged, but give sparks only when the hammer leaves the anvil, the action being purely mechanical. It is claimed the spark is four or five times as large as that given by the jump spark system and that it will explode almost any kind of mixture. The use of this sparking mechanism, of course, does away with a multiplicity of wires, commutator,

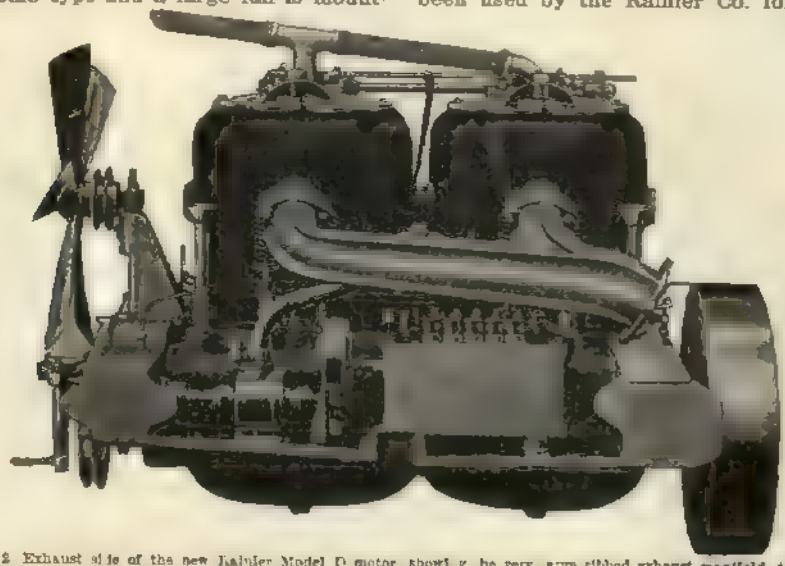


Fig. 2 Exhaust side of the new Rainier Model D motor showing the very large ribbed exhaust manifold, the mounting of the gear driven bucket type pump and the mechanical lubricator. The cylinders are cast in pairs as shown, with very large integral water jackets, bore 5 inches stroke 5¾ inches rated horse power 45-50. The fan is mounted on annular ball bearings and the belt tension is adjustable. The tops of the water jackets are covered by large aluminum plates.

vibrating coils, etc. The mechanism is clearly shown in the accompanying cut. In place of the small springs, trippers and levers formerly used, a single rotating shaft which brings the hammers into contact with the electrodes, is used. Immediately after the cams have passed the breaking point, the hammers spring back sharply under the impulse of a powerful compression spring which works in oil and is the only spring used on the entire mechanism. The ignition shaft is rotated by means of spiral gears through an upright shaft from the cam shaft and is provided with a ratchet device to take care of any kick back of the motor. The time of ignition is varied by means of a sleeve on the upright shaft which raises and lowers the driving spiral gear and thus changes the time of rotation of the ignition shaft. The timing of the engine is also simple and is accomplished by turning the fly-wheel to the mark corresponding with the respective cylinder, adjusting the cam until it touches the hammer rod and then tightening the special clamping device. The hammer and the anvil is a self-contained mechanism in each spark plug. These plugs are held in place by a nickel steel yoke held by a single bolt and nut. The contact points have been improved and their life lengthened by the use of iridio platinum points which do not burn appreciably. This system, it will be seen, is much simpler than that ordinarily used, where the operation is by means of four vertical reciprocating rods on the outside and separate small springs

A multiple disc clutch is used in the 1908 models. This consists of 70 tempered steel discs revolving in an oil bath. The clutch has only one adjustment, which is the tightening of the thrust spring to increase the tension. The entire clutch can be easily removed by loosening a few nuts and screws and does not necessitate disturbing the transmision or motor. A new style of universal joint is interposed between the clutch and transmission.

CHANGE SPEED GEAR

The general construction of this mechanism is along the lines previously used but in model D an extra speed has been added, giving four speeds ahead and one reverse. The control has been changed to the selective type and the direct drive is on the third speed, which has a ratio of 3 to 1, while the fourth speed is through gears with a ratio of 2¼ to 1. This makes it possible to run practically all the time on the direct drive, and if it is desired to make very fast time, the fourth speed can be used in which case the tail shaft rotates at a higher rate of speed than the engine. All the shafts and gears are of nickel steel, heat treated. The gears are bolted to flanges integral with the shafts and all the nuts are cotter pin retained Non-adjustable annular ball bearings are used thruout. The counter-shaft or lay-shaft is placed below the driving shaft, thus permitting of the use of sealed bearings, preventing oil leakage. The gear case is of aluminum fitted with a large removable hand cover, and is mounted by means of four integral arms. The shifting levers are all protected from dirt and grit by an aluminum cover, which is also oil-tight.

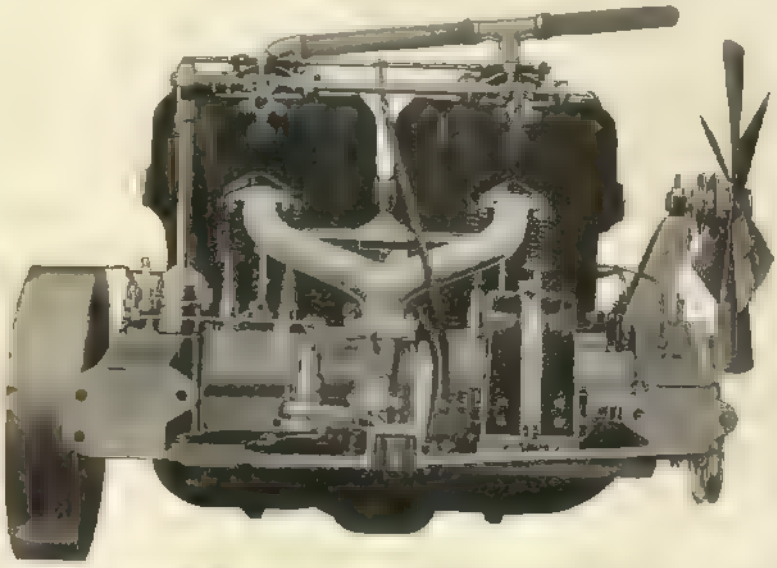


Fig. 3. Inlet side of the rear [illegible] showing the location and connections of the new carburetor; the mounting of the [illegible] tension Simms Bosch magneto, which supplies the current for the new make and break ignition system which is driven by the vertical shaft shown at the left, which operates a horizontal ignition shaft at the top of the motor. The details of the ignition mechanism are shown in Fig. 4. The crank case of the engine is of aluminum the casing forming an integral pan construction.

AXLES

Shaft drive, as in the previous Rainier models, is used, and the rear axle con-

struction, except for a few changes to provide for the slight additional weight in the car, has not been altered. The driving axle, as in all the other models, is of the floating type, the wheel bearings being mounted on the tubular axle which carries the weight of the car, leaving the rotating shafts to transmit the power to the wheels by means of dog clutches at the outer ends of the wheel hubs. The bearings are non-adjustable and the axle nuts can be screwed on as tight as desired without in any way affecting the bearings. The differential case is a drop forging instead of the usual casting, and the housings are all manganese bronze. The gears and propeller shaft are all of nickel steel, the driving pinion and its shaft being integral, the pinion being supported by a bearing on each side of it. Two universal joints of new and improved type are used. The front axle is a forging of manganese steel of I-section. The front wheel hubs are also mounted, as in the case of the rear wheels, on annular ball bearings, all of these parts, including the steering knuckle, being of generous dimensions. The knuckle is fitted with a hardened steel bushing and hardened steel pin and an oil cup on top provides constant lubrication.

The front springs are semi-elliptic, 2¼ inches wide, and are of extra length. The rear spring suspension has been altered for 1908 and is now of the platform type and differs from the ordinary construction as the rear frame member is carried out backwardly at the centre and rests directly on the rear cross spring, which is clipped to it. The usual side springs are used and side motion is avoided by the use of short coupled shackles. The construction is shown in the accompanying photo. The springs are 2¼ inches wide and all of ample length, and are said to be of the very finest quality obtainable. Oil cups are placed on all of the spring connections.

The frame is of prest nickel steel of the usual channel section, heat treated, after being prest into shape. It has a 2½-inch drop forward of the rear axle. All of the bolts and nuts are cotter pin retained. A short aluminum pan extends under the clutch and transmission gear, and as previously stated, the motor base forms a protecting pan.

The wheels are of the very best grade, second growth hickory, known as "A," and are mounted on imported annular ball bearings. The front wheels carry 4-inch tires and the rear 4½-inch tires. Any American make can be supplied with standard clincher rims. Other styles of rims are furnished without extra charge if desired.

The Rainier muffler has been retained, but has been increased in size. It is placed transversely at the extreme rear of the chassis and is provided with two duck-bill vents so placed that the discharge of the exhaust gas is directly in the path of the rear wheels, thus preventing the dust from rising and also doing away with any chance of the gas coming up through the floor boards. The exhaust pipe is 3½ inches in diameter and the entire pipe has no sharp bends or angles, but runs backward from a rounded elbow, thus giving as little back pressure as possible. Each car is fitted with a muffler cut-out controlled by the pressure of the operator's heel.

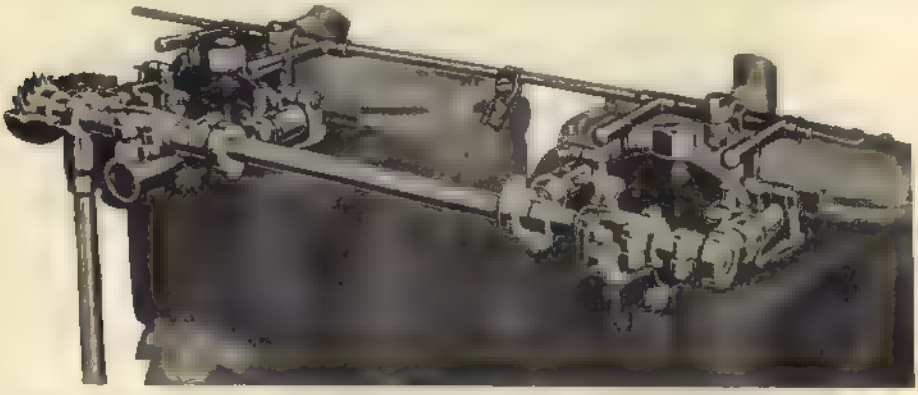


Fig. 4. Detail view of the Model D Rainier make and break ignition mechanism. This mechanism has been simplified, and instead of four vertical shafts, a single shaft at the rear of the motor operated from the cam shaft, drives by means of spiral gears a horizontal ignition shaft carrying four adjustable in position igniter cams held by special clamping devices. The rotation of this shaft and the timing of the ignition can be varied by a vertical movement of the spiral gear on the vertical driving shaft making the timing as simple as on the jump spark system. A short piece of wire leads from the dynamo to the center of the cross bar which is connected to the plugs by means of knife switches. When in operation the electrodes are constantly charged, but only give a spark when the hammer leaves the anvil. In place of the small springs and the trippers and levers formerly used, the cams bring the hammers to the contact points, and immediately after the cams have passed the breaking point, the hammers spring back rapidly under the impulse of a single powerful compression spring, which works in an oil bath and is the only spring used in the whole mechanism.

BRAKES AND CONTROL.

Both brakes for 1908 are mounted on the rear wheel drums. They are of extra large dimensions and metal to metal, both being of the internal expanding type and holding equally either in a forward or backward direction. The emergency brake is controlled by a pull lever and the foot

brake is connected with the outer or larger drum, which change has been made as this brake is the one more often used, and, consequently, should have the greater wearing surface and durability. For this large brake a very slight pressure of the foot is required. The usual spark and throttle levers are mounted on a stationary sector on top of the steering wheel.

The steering mechanism is of the combination rack and pinion type and is irreversible. It is well proportioned, thoroly hardened and the reach rods and knuckles are all of angle steel. The steering column ends in a quadruple thread screw. On this a square nut travels, the back of the nut being cut in the form of a rack which engages a pinion and gives an oscillating

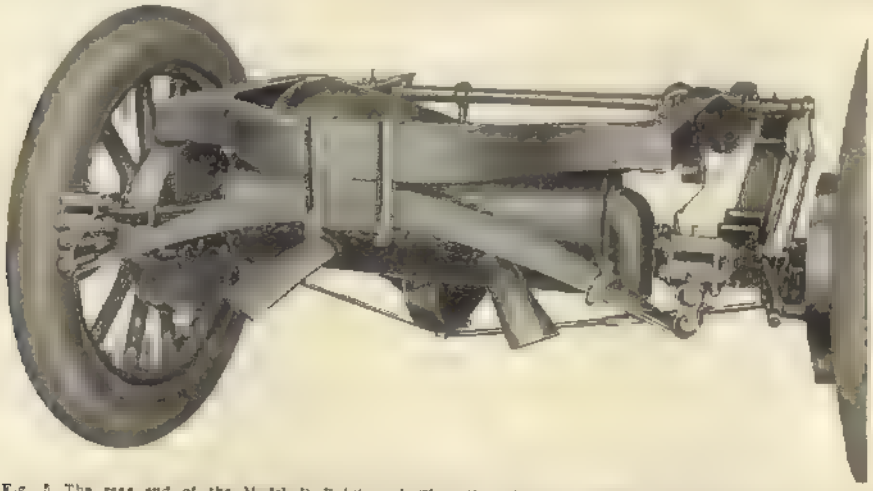


Fig. 5. The rear end of the Model D Rainier, showing the platform spring construction and its method of mounting to the outwardly bent rear frame member, also the arrangement of the large muffler and the double duckbill exhaust pipes. Double sets of brakes of the metal to metal expanding type are fitted to the rear wheels each on separate drums, those in the larger drums being the pedal operated service brakes as those are the ones which are used more often and require longer life.

The make and break system to a great extent takes care of this automatically, due to the speed of the low tension magneto, therefore, the control is to this extent simplified. Attention is called to the foot accelerator for use in negotiating crowded streets, as the speed of the car can be instantly increased or decreased without removing the hands from the wheel, the

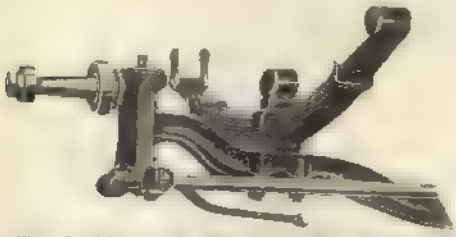


Fig. 6. View of the Model D Rainier manganese steel I section front axle and steering knuckle, showing the method of mounting the front springs. Attention is called to the generous dimensions of these parts. The knuckle is provided with an oil cup on top for lubricating. The stub axle is fitted with non adjustable annular ball bearings.

clutch and brake pedals being on a pivot pushed forward instead of downward. The emergency brake levers are in the usual position at the side of the driver's seat. An auxiliary air control lever, by means of which the mixture in the carburetor can be changed from the driver's seat, is located on the dash and a push button for cutting off ignition is also placed on the dash. With the exception of these two devices the dash is entirely clear.

motion to the steering arm. A ball bearing takes the thrust of the screw and the entire mechanism is enclosed in an oil-tight case.

The weight of this car complete is 2950 pounds, and although the increase in the power over 1907 is nearly 50 per cent., the corresponding increase in weight is but 20 per cent.

BODIES

The accompanying cut shows the outline of the new convex body. These bodies are all of aluminum with ash frames, and are upholstered in hand buffed leather over curled hair and spiral springs. All the touring bodies are ironed for tops and have two removable folding seats. The passenger capacity is seven, comfortable acommodations being accorded to all, as the rear seat measures 52 inches between cushions. Limousine and landaulet bodies are also supplied and fitted with every comfort and luxury, including electric dome light, speaking tube, push button, card case, clock, silk curtains and two removable opera chairs.

The Rainier Co. wish it understood that this is not to be known as a 1908 or 1909 model, but is the Model D, and should any change suggest itself to the manufacturers it will be at once applied without waiting for a new model or season.

The price of the touring car complete is $4500; of the limousine, $5750; and of the landaulet, $5800.

Stilson Six

One of the recent entrants into the motor car industry is the Stilson Motor Car Co., Pittsfield, Mass., U. S. A., builder of the "Stilson Six," one chassis only being made but fitted with various types of bodies giving several models. This machine is high grade, both in material and workmanship and contains many minor deviations from the usual practices, all of which, however, tend toward comfort and reliability. The location of the maker in the hills of western Massachusetts gives exceptional opportunity for trying out the car on strenuous work, and as each and every machine is demonstrated to be satisfactory under these adverse conditions it is but natural to suppose that the "Stilson Six" will make light work of the less trying road conditions which are usually met.

CHASSIS SPECIFICATIONS.

The motor is of the six-cylinder type cylinders cast separately with integral water jackets. The bore is 4 11 16 ins. and the stroke 5½, the engine being rated as 50-60 H. P. The valves are located on opposite sides, are interchangeable, mechanically operated and as noiseless as it is possible to make a valve. Ignition is by high tension magneto and also as a reserve a full set of coils and storage batteries are installed A special oiling system is used which will be described later. The wheels are of the usual artillery type, second growth hickory, 34 or 36 ins. in diameter and are fitted with clincher or Marsh quick detachable rims. 4 in. front tires and 4½ in. rear of any American make, constitute the tire equipment The wheel base is 123 ins., tread standard.

Drive is by means of shaft and bevel gears and a three speed and one reverse sliding gear of selective type. A double set of brakes of internal and external type are fitted to the rear wheels. The standard body is of side entrance tonneau touring type, seating seven passengers and is ironed for top The car with this body completely equipped weighs 3225 lbs. and sells for $4500. The equipment consists of two large acetylene headlights, B. & L. mirrors, generator, two square oil side lamps, oil rear lamp, whistle operated by foot lever, footrest, robe rail, pump, jack and full kit of tools. With limousine body the car sells for $5500.

THE POWER PLANT.

The motor, which is the vital part of any self-propelled vehicle, is a very compact, neat looking and powerful piece of mechanism, the very neat appearance being due largely to the fact that the multiplicity of small pipes, wires and linkages have been localized and carried thru conduits or other means which protect these small parts and keep them from cluttering up the engine. The six 4 11-16x5½ in. cylinders develop 60 H. P. at 1100 R. P. M. The base of the engine is an aluminum casting which forms the pan and also the engine support and rests on the sub frame, which is of the usual channel section prest steel, the narrow space between this sub frame and the main frame being filled by a thin sheet metal pan so that it is impossible for any road dirt or splash to enter the space underneath the hood. This case is divided in a horizontal plane, the lower half, as usual, forming simply an oil pan with three large hand holes on the under side covered by plates. The main bearings are of babbitt seven in number, and hung from the upper half of the case.

The cylinders are good examples of foundry work with symmetrical valve chambers on opposite sides, well provided with water jacket space, particularly around the exhaust valves. The tops of the valve chambers are fitted with screw plugs with castellated tops and are tapped to receive the spark plugs. The valves are 2 1-16 ins. diameter with 7-16 in. lift and are made with integral heads and stems with large fillets The usual helical springs are used for closing them, the lower end of the springs resting on a flanged washer, the lip of which prevents an ordinary straight pin placed thru the stem of the valve from coming out of place, thus retaining the springs The valve lifting rods are fitted at their lower ends with 1 1-16 in. diameter hardened steel rollers ⅛ in. wide, the rollers themselves working in slots in the valve lifting rod housings and thus preventing the lifting rods from turning. The guide housings are of bronze and are held by two cap screws each to suitable bosses on the crank-case, while the lifting rods, contrary to usual practice, are made of Shelby steel tubing, pack hardened and ground.

A neat arrangement for excluding dirt consists in making the top of the valve lifting rod guides in the form of inverted cup-shaped caps which move up and down with the lifting rods and are a sliding fit over the outside of the housings. The cams are of special contour fastened to the shaft by means of two pins each. The cam shaft runs in four bearings which are arranged as follows: a large bearing is placed at each end and two others are placed between the two sets of cams so that each end of each bearing comes outside of a cam and supports the same. The six throw crank shaft is cut from a solid bar of chrome nickel steel with a six-inch integral flange at its rear end, which by means of eight ⅝-in. cap screws and two dowel pins carries the 16-inch, 60 lb. flywheel. The connecting rods are H-section drop forgings, the lower cap being held by four Vanadium steel thru bolts with two

check nuts and a cotter pin at their lower ends. The upper end of the rod is non-adjustable and fitted with a sleeve bushing of bronze. The crank pin bearing is of babbitt of liberal dimensions. The wrist pin is of Shelby steel tubing, pack hardened and ground and prevented from side slip by two set screws which pass thru the piston bosses into the hollow inside of the pin and have a bent wire placed thru holes in their inner ends to prevent them from coming out, this method being one of the simplest and most effective known. The pistons are of standard design, good quality, of gray iron and fitted with 4 rings above the pin

The gears at the forward end of the engine are enclosed and packed in grease, the crank shaft gear being of steel while the cam shaft gears are a combination of bronze and fibre for quiet running. A longitudinal shaft on the left side of the engine is driven from a small steel gear at its forward end from the cam shaft and operates the magneto and the pump, which is of centrifugal type

The carburetor is a large size Schebler fitted with a special balanced throttle of the company's own make

Cooling is effected by means of this pump and a honeycombed type of radiator which is claimed to be exceptionally efficient, so much so that the car can be run without the use of any fan, although a small brass bladed fan on ball bearings is provided, the fan support being held to the forward cylinder. The fan is driven by a round-section belt from the pulley on the pump shaft. Circulation is from the pump to the lower part of each of the cylinder jackets near the exhaust and out thru the top by means of thin brass piping to the top of the radiator.

EXHAUST AND INTAKE MANIFOLDS

The exhaust manifold is a single piece malleable iron casting with easy curves and of varying cross section to correspond with the volume of the exhaust gases to be disposed of. The intake manifold is peculiar, being a special patent of Mr. Stilson and is so designed that it is claimed the volume of gas conveyed to each of the six cylinders is equal. The general layout of this intake can be seen in the accompanying photograph of the right side of the engine. The design is such as to minimize the effects of inertia of the body of gas in the pipe, this being accomplished by making the distance to each of the six intake chambers equal.

A 23 gallon gasoline tank is suspended from the rear of the frame and supplied by pressure from the exhaust pipe thru the usual reducing valve placed on the dash under the hood About ten miles to the gallon is claimed for this machine which is extremely good for a six-cylinder car of this weight. The aluminum dash by the way, deserves special mention as it serves the double purpose of a dash and a series of compartments, one of which, being cast integral with it, forms an oil tank. The dash is cast in a curved form, the back being neatly fitted with mahogany and also forming a compartment for the coil. The dash proper is clear of apparatus with the exception of a small hand pump to supply air pressure to the gasoline feed when starting and a small window in it shows the level of the oil in the oil tank.

The oiling system consists of collecting the surplus oil in a chamber in the base of the crank case, from which a small gear pump, bevel gear driven from the cam shaft, forces the oil which first passes through a strainer, to the tank in the dash.

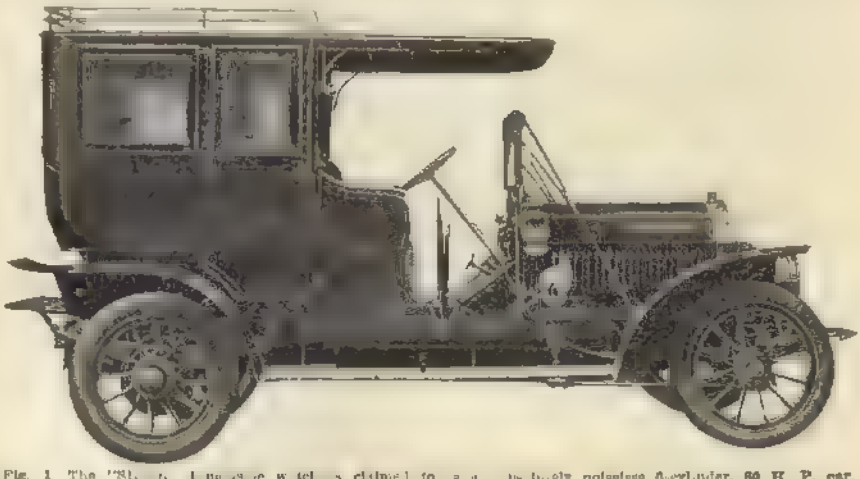


Fig. 1 The "Sti[illegible] claimed to [illegible] noiseless 6-cylinder, 60 H. P. car. The [illegible] is 4 11 16 bor[illegible] by [illegible] cylinder [illegible] ignition from Simms Bosch high tension [illegible] unit vibrating [illegible] closed in the hollow cast [illegible] as an integral oil tank [illegible] wheels, choice of American [illegible] gear [illegible] bearings. 23 gal[illegible] tank at rear of frame, extra long springs [illegible] Price fully equipped, $[illegible]

From this tank oil pipes lead the length of the case and small branch oil pipes diverge from it and supply oil for lubricating each of the bearings, the overflow being sufficient to maintain the splash in the case which takes care of the cylinders. In the top of the connecting rod is a small cup shaped hollow which catches the splash and conducts the same thru an oil hole to the wrist pin bearing and also thru holes to the inside of the hollow wrist pin from which place it runs to the ends, thus giving additional lubrication to the cylinder walls.

IGNITION

Ignition is by means of jump spark, current being furnished either by ten dry cells or by Simms-Bosch high tension magneto. The battery and plugs are over the intake valves while the magneto plugs are in the side of the cylinders near the head. A six unit vibrating Jacobsen-Brandow coil is used in connection with the storage batteries, but simply for starting and as an auxiliary. This coil is entirely protected from the weather by being placed in a compartment within the curved cast aluminum dash, but is accessible by means of a small swing door. This new coil has several distinctive features, among which may be mentioned a micrometer adjustment of the vibrators, this adjustment being so arranged that either the spring contact or the screw contact point may be entirely removed and replaced without spoiling the adjustment. The coil is made up in the unit type so that each part can be removed as desired. No external wires are necessary, the placing of the units in the box making suitable spring contact connections. The order of cylinder firing used is, 1, 4, 2, 6, 3, 5.

CLUTCH.

The clutch is of the cone type fitted with special leather face and provided with cork inserts giving gradual engagement and durability. It is forced into contact with the inside of the fly-wheel by means of the usual helical spring of about 250 lbs. tension. The clutch shaft is carried backward into the change gear case, which is of aluminum, but contrary to the usual custom is cast in one piece but the gears are accessible as the top forms a large hand hole cover. The gears provide three speeds forward and one reverse and are selectively operated. The drive is direct on the high, the gear reduction being 2½ or three to one at the rear axle, as desired. The sliding members move on four integral keys on the sliding gear shaft. The shafts are mounted on Hess-bright bearings, these shafts being removable by unscrewing caps at the ends of the case. Gears of 6 pitch in width and 8 pitch in depth are used, this form of tooth being very strong. The selective gear shifting lever operates in a quadrant and is pivoted so that it swings in three different planes, engaging in the two extreme positions short levers which operate telescoping sleeves on a cross rod, the sleeves being provided with arms at their inner ends which connect with the gear shifting rods. The gear case is mounted on four integral arms to the sub frame on which the engine is also placed.

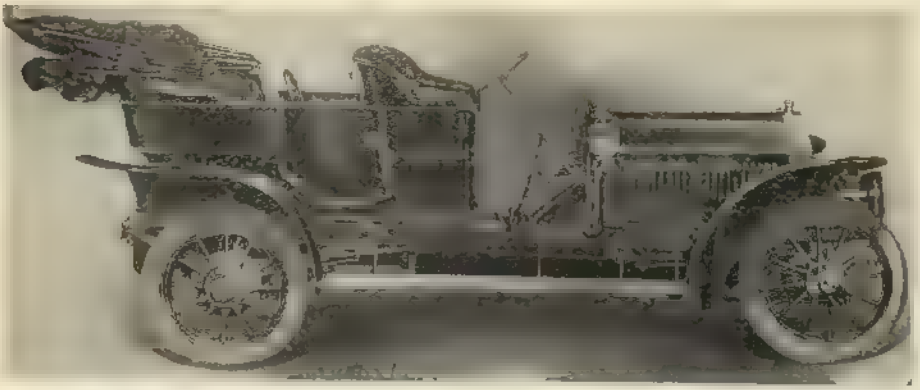


FIG. 2. The "Stilson" Touring car. The 6-cylinder motor is rated as 50-60 H. P. Comfortable seating is provided for 7 passengers. Attention is called to the graceful design without unsightly overhangs or the usual ponderous hood accompanying the use of 6-cylinder engines. The chassis is the same as the larger car. The weight is 3225 lbs., price $4500.00 fully equipped.

FRAME AND SPRINGS

The frame is of usual type, consisting of channel section prest steel, narrowed at the front and the sub frame is of similar material and construction and extends from the forward end to the extreme rear of the change gear case. Semi-elliptic springs are used in front and rear, the rear springs being entirely out of the ordinary, as they are fully 60 inches center to center and contain twelve leaves, thus giving an extremely easy riding tonneau. The forward springs are as large as are very often used on the rear of a great many touring

cars, being 34 inches in length. These are 2 inches in width. All springs are perched on top of the axles, both springs being shackled at their rear ends.

DRIVE BRAKES AND AXLES.

Power is transmitted from the gear case thru the universal-joint shaft to a full floating rear axle. Two new Hartford universal joints are used, one at each end of the driving shaft. The rear axle construction is fitted with ball bearings thruout and is well trussed, the design being such as to relieve the live axles of the weight of the car. Dog clutches are used at the ends of the live axles to drive the wheels, this construction, of course, permitting these axles to be taken out at any time with the car still standing on its wheels. The rear wheels are each fitted with two brakes, one expanding and the other contracting. Both of these brakes are entirely independent of the clutch. The outside or service brake is a camel-hair belting lined, double-acting contracting band, while the inside or emergency brake is similarly lined and of expanding type, being operated by rocker cams. Two singletree-type equalizers, each being the full width of the frame, ensure a distributed pull on each of the brakes. A heavy tubular torsion arm is fitted to the rear axle, its forward end being held between helical springs in a special fixture attached to a cross frame member.

There are two pedals, one controlling the service brake and the other operating the clutch. The emergency brake is controlled by the outside hand lever, and following the usual custom, the change gears are also operated in this manner. Spark and throttle lever control is supplied on top of the steering wheel which is of large size.

The front axle is a one-piece I-section drop forging of chrome nickel steel. The steering knuckles are also drop forgings and the wheels are mounted on imported ball bearings of adjustable type, using Vanadium steel cones. The wheels are 34 or 36 ins. in diameter of second growth hickory and fitted with 4 in. front and 4½ in. rear tires, the choice of any standard American make being given. The steering gear is somewhat out of the usual order, consisting of a nut working in a rack, which in turn operates a spur gear at the upper end of the steering arm, the lower end of which is fitted with a ball and socket joint to the usual drag link connecting with the steering knuckle. The steering gear is entirely encased and runs in grease and is, of course, irreversible. It is

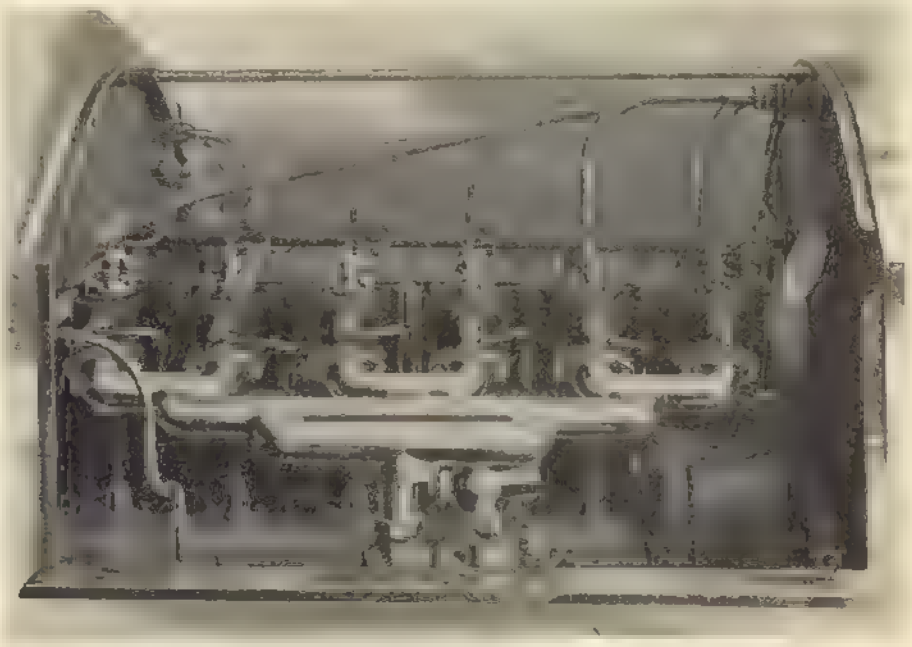


Fig. 3. Left side of the [illegible] 6-cylinder motor. Note the neat arrangement of the pipes and wiring. The cylinders albo cast separately are very compact and are 4 11-16 x 5½ [illegible]. A special oiling system the tank being cast in the aluminum dash is used. The peculiar intake manifold [illegible] tested and [illegible] to deliver the same quantity of mixture to each cylinder. It is arranged in such form that the distances to each valve chamber is the same. The claim is made that this engine is so smooth running that a person in the tonneau cannot tell whether it is running or not. Detailed description will be found in the text

rigidly attached to a side frame member and also to the sub-frame, and the steering post is well supported A feature of this

Fig. 4. Stilson Six. View showing the rear of the hollow cast aluminum dash, door to the compartment and containing the six unit vibrating coil is open so any unit can be removed. This arrangement makes the coil absolutely waterproof. The oil tank is at the right side and cast integral with the dash. It has a window showing the oil level The small hand pump is for initial pressure on the large gasoline tank at the rear of the car

steering gear is the fact that all thrust is taken on ball bearings.

The entire construction of this machine is along standard lines, the merit of which cannot be questioned, the material is high grade and the workmanship exceptionally good. The finish is what it should be on a high grade machine, heavy fenders webbed to the frame being used and well supported to the running boards. Trunk racks, robe rails, foot rests and other minor necessities of touring are arranged for. The car is said to be extremely easy riding and a specially good hill climber and one of the chief points claimed for it is the fact that the engine is so smooth running and well balanced that it is impossible for persons sitting in the tonneau to feel any vibrations from it or hear it. The muffler is of special design and extremely efficient, entirely silencing the exhaust so that the car is practically noiseless.

A new form of clutch which has recently been patented and here described and illustrated for the first time will be used in the new cars.

The object of this device is to automatically insure an easy starting of the car, independent of the operator, and it is claimed that it serves very much the same purpose as a change of gears in the starting operation, and that there is no serious heating of the oil under such conditions.

Crown Motor Carriage

The Crown Motor Vehicle Company, with factories at Amesbury and Boston, Mass., and Boston office at 23 Motor Mart, Park Square, has just placed upon the market a new carriage type automobile, which has several distinctive features. This new vehicle owes its origin to a combination of interests. Mr. W. A. Shafer, well known as the New England distributer of the Glide cars, is the president of the company, and Mr. J. R. Graves, president of the Graves & Congdon Company, of Amesbury, well known, high grade automobile body designers and builders, is the secretary of the company, and Mr. Frank Dodge, mechanical engineer and designer of automatic machinery, is the treasurer.

The bodies for the new vehicles are built at the Amesbury factory, while the engine and other mechanism are constructed in Boston.

GENERAL ARRANGEMENT AND SPECIFICATIONS.

The Crown motor vehicle, as shown in the accompanying photograph, has a neat, carriage-like appearance, there being nothing special to indicate the presence of machinery or mechanism of any kind, other than the side driving chains, which in future models will be entirely encased, protected from road dirt and also providing protection for the wearing apparel of lady operators.

Tiller steering is employed, the lever being placed in front of the right-hand occupant. The motor is of the two-cylinder, opposed, air-cooled type, having a bore of 4¾ inches, stroke 4 inches, and develops 12 horse-power actual. All parts of this motor, which is of special design, are interchangeable, and as it is located in the rear of the body and not under the seat, it is very accessible. It is mounted on a three-point suspension, and drive is by means of a shaft running forward to a jack shaft carried on an aluminum cross member attached to the side frame members of the carriage, and at the centre of this cross member an integral aluminum housing carries the bevel gear pinion and spur gear differential. The usual sprockets are fitted at the ends of the jack shaft and drive to the rear wheel sprockets by means of chains. The frame of the vehicle is angle steel, suitably riveted and well braced, and upon this a highly finished, Crown special body is bolted.

The spring suspension consists of two full elliptic springs, one at the front and one at the rear perched on top of the ax-

NOTICE

IT HAS BEEN BROUGHT TO OUR ATTENTION

That certain unscrupulous dealers and top makers have been offering to the trade and public Automobile tops made of cheap inferior leather substitutes, representing them as

Pantasote

The name PANTASOTE represents a particular composition, which is, and for years has been, manufactured exclusively by us. It is thoroughly protected by copyright. We do not desire to create trouble, but for the protection of our own business, as well as that of our customers, we are forced to give notice that we will follow up and

Prosecute to the full extent of the law

all such cases as come to our notice.
If you are in doubt as to the genuineness of the PANTASOTE, request your dealer to affix one of our trade mark labels to the top or send us a small sample or one of the side curtains.

TO DEALERS

We are prepared to furnish upon application, free of charge, small celluloid trade mark labels, one of which affixed to a Pantasote top stamps its genuineness.

THE PANTASOTE CO.

NEW YORK, 11 Broadway

CHICAGO, 707 Fisher Building

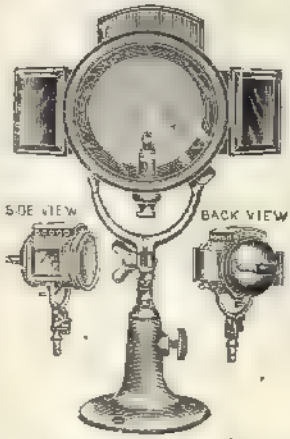
20th Century · Complete Modern Line

LAMPS AND GENERATORS

For Bicycles, Motorcycles, Automobiles and Boats

See Latest 20th Century Catalogue

OIL and GAS



"BABY GRANDS"

Acetylene

SEARCHLIGHTS

combining

Head, Port and Starboard Lights

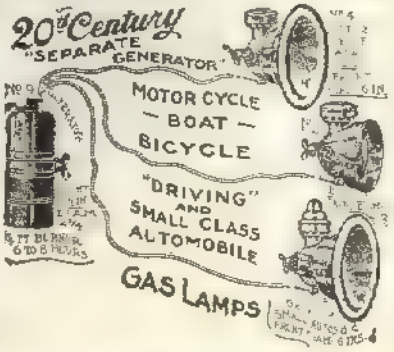
2 Sizes—4¼x6½ inch front
Finest ground Mangin Lens

With variations as to side lights, etc.

For AUTOMOBILES

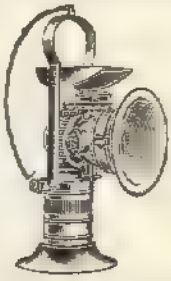
The smallest size without side lights

For MOTORCYCLES



A smaller lighter weight contained generator acetylene lamp for CANOES, BARGES, etc. Also for Camp, Mining, Railroad, and general use.

See special literature.



Splendid For Garage Work

20th CENTURY MFG. CO.
19 Warren St., N. Y.

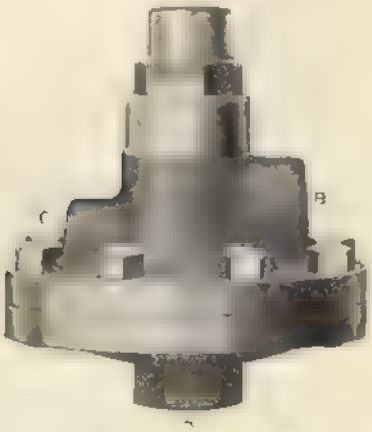
Something new, easy sale, good profits

Walker's New Steam Appliances

The E. C. Walker Mfg. Co., 811 Nelson St., Louisville, Ky., who offer a complete line of up-to-date steam car appliances, have brought out a new design of steam condenser and a new automatic water regulator for use with flash boilers.

The New Walker Condenser

"The accompanying illustration shows this new type of condenser which is of the flat type and contains an unusually large radiating surface. The tubes are flattened so that the steam is separated into thin sheets and said tubes are so spaced that full circulation of air between the tubes is afforded. The tubes being verticle are claimed not to clog with oil which may be entrained in the exhaust steam. These condensers are furnished in any size desired



The Walker Water Regulator:

The Walker Automatic Water Regulator, here illustrated, is for use with flash boilers This device is an automatic by-pass valve of the diaphragm type. It is governed by the steam pressure and can be adjusted to by-pass the water from the pumps at any pressure desired. The cap A is removable in order to make adjustment for different pressure and when once adjusted, no further attention is required.

From a T in the water delivery pipe, a pipe connection is made to the regulator at B. From the outlet C, pipe connections are made either back to the water tank or to the suction pipe of the water pump The steam pressure connection is made at D by means of a water trap or siphon to prevent the diaphragms from becoming overheated, as would be the case were no trap used.

The manufacturers of these appliances also offer a new automatic fuel regulator which may be successfully used on any steam car for regulating the fuel supply to the burner This fuel regulator is of the diaphragm type and embodies some new features not hitherto employed. It has no stuffing boxes to cripple the action of the valve which is of the floating type. It is easily and quickly adjusted by the use of a wrench and adjustment may be made while steam is and the fire is burning. This fuel regulator is guaranteed to act within of variation in pressure and can be furnished for any pressure up to 800 pounds

The "Bonney" Portable Automobile Vise

The accompanying cut shows the Bonney portable automobile vise, brought out by the Bonney Vise and Tool Works, 3011-3015 Chestnut street, Philadelphia, Pa., to meet the demand for a neat, serviceable vise, large enough for moderate sized work, yet small enough to be carried in the automobilist's tool box.

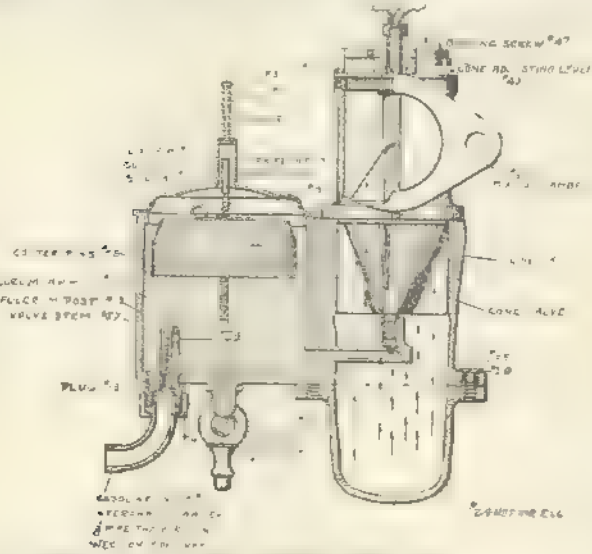
A feature of this vise which makes it particularly useful to the automobilist is that it can be instantly clamped on the running board and as quickly detached

The "Bonney" Portable Automobile Vise.

Size No 115, here illustrated, is suitable for a medium sized car. Other sizes are made with from 1½ to 3 inches width of jaws. All of these vises are manufactured with a solid steel front jaw, and the screw is made from bar steel. This firm also makes a specialty of a heavy, strong, machinists' vise with a swivel base suitable for private garages.

The 1908 "Buffalo" Carburetor

Several refinements have been made in the Buffalo carburetor for 1908 to make it a mechanical carburetor in every sense of the word. No movements are automatic, nor do atmospheric conditions alter its operation. This carburetor, which is the product of the Buffalo Carburetor Co., 887-889 Main street, Buffalo, N. Y., is designed on the principle that the mixture should be variable at the will of the operator to suit the load imposed on the motor.



Sectional view 1908 "Buffalo" carburetor thru the float chamber and vertical air passage.

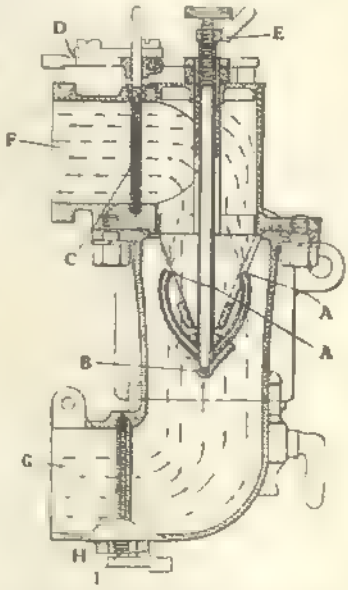
An attempt has been made to get away from springs or other mechanism depending on atmospheric conditions for successful operation. All members are direct solid connections, giving the operator complete and positive control of his machine.

The air inlet and the gas outlet of the 1908 Buffalo are interchangeable, and the gasoline inlet is also interchangeable.

The intake of gasoline is thru the screen into a float chamber circular in shape and differing in no wise from last year's float chamber. The float is of cork, with a priming stem placed immediately above it at the centre of the float chamber. The gasoline is conducted by a pipe about midway of the mixing portion of the device to the base of the mixing chamber, where it is fed to the nozzles at the base of the cone valve.

The entering column of air passes the gasoline nozzles at adjustable openings in the cone valve. The cone valve and throttle are link connected and move in unison. Both are adjusted to give the proper mixture for low speed. As increased power or speed is desired the operator rotates the cone valve and throttle, increasing the quantity of the mixture admitted. The speed of the mixture passing the nozzles is kept the same. This feature, the company claims, insures a perfect mixture for all powers, prevents a greater quantity of fuel from being drawn by the motor than can be properly burned, and hence insures great economy.

The interchangeable gasoline intake is provided with a screen which keeps out practically all dirt and scale from the tank. In case foreign matter gets into the nozzles the carburetor is very easily cleaned by removing the needle valve and float, and, after placing the finger over the gasoline intake to the nozzles, blowing out the obstructions.



Vertical sectional view 1908 "Buffalo" carburetor, showing the passage of air past the gasoline nozzle and the mixture to the motor. A, A, gasoline nozzle, B, needle valve; C, throttle valve, D, throttle lever, E, lock nut; F, gas outlet, interchangeable G, air inlet, interchangeable H, starting valve, I, spring.

The "Never-Miss" Chain Tool

Never-Miss Spark Plug Co., Lansing, Mich., is putting out for 1908 in addition to its line of ignition apparatus a chain tool here illustrated. With this tool can be drawn together the heaviest chain. It retails at 50 cents.

The "Never-Miss" Chain Tool.

The Electric Vehicle Company's employees have formed a mutual benefit association, the object being to care for members unable to work thru sickness.

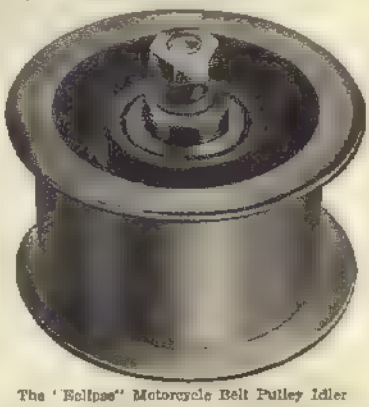
The "Erie" 2-Cycle Bicycle Power Attachment

One of the chief features of the latest "Erie" bicycle attachment is the fact that the motor is of the 2-cycle type, which, because of its lightness and simplicity, makes it an ideal means for converting the ordinary bicycle into a power-driven machine. This attachment is the product of the Motorcycle Equipment and Supply Company, 3 Lake St., Hammondsport, N. Y., and is sold either separately, all ready for attaching to the bicycle frame, or in the shape of a complete motorcycle. The attachment fits any size or make of frame and is attached without a particle of alteration to the bicycle frame, except slightly bending the narrow makes of cranks. The Erie attachment gives a speed of from 4 to 30 miles, and is controlled by means of one lever, the movement of which increases or decreases the speed as desired. The tank is made of heavy tin and holds gasoline for 80 to 110 miles, and enough oil for 100 to 150 miles. The battery case is made to hold three standard dry cells. The drive is by the Erie flexible waterproof, gray, tanned V belt, which is constructed on an entirely new principle that makes it extremely tough. The attachment complete lists at $90, which includes motor, clamp and pulley, coil, switch grip, muffler, carburetor, control lever, tank, battery box, belt, 3 batteries, oiling device, cocks, and, in fact, every part of the complete motorcycle except the parts represented by a bicycle. The motor alone, without accessories, lists at $55.

This concern also furnishes complete motorcycles on which this power outfit is used. Their Model I lists at $150. For those wishing a heavily built motorcycle for rough use, they offer their three horsepower special, which lists at $175 complete.

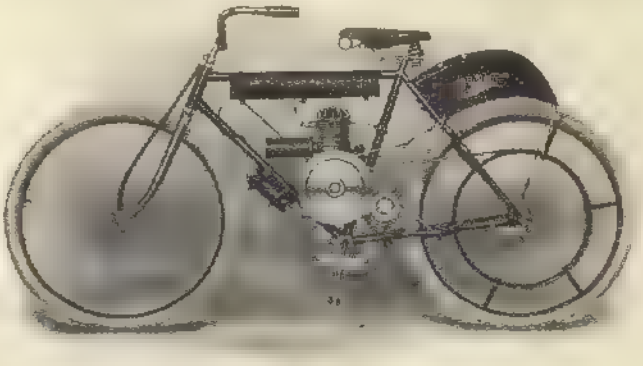
The "Eclipse" Belt Pulley Idler for Motorcycles

The accompanying cut shows the Eclipse belt pulley idler for motorcycles, manufactured by the Eclipse Machine Company, Elmira, N. Y.



The "Eclipse" Motorcycle Belt Pulley Idler

The manufacturers also furnish other motorcycle specialties, such as coaster brakes, hubs, head sets, etc. The pulley is also made with a V-shaped groove when desired for use with a V-shaped belt.



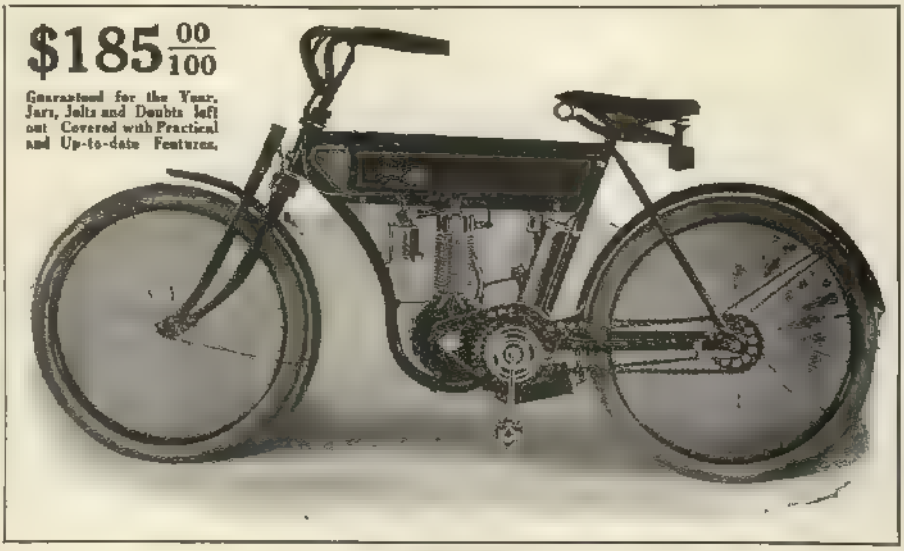
The "Erie" 2½ H. P. two-cycle bicycle power attachment.

Motor used in the new "Erie" 2-cycle motorcycle outfit.

A 1902 Indian Motor Cycle made by Hendee Mfg. Co. of Springfield, Mass., recently won the hill climbing championship, of New Zealand, Australia, at Christ church. This machine has won this contest four years in succession against representive motor cycles from all parts of the world. At home the Indian is also distinguishing itself being the winner of the 104-mile endurance contest recently held in Alabama. This machine was ridden by Robert Stubbs of Birmingham and covered the run in 5 hours 22 minutes, actual net running time. It made all but one of the eight controls on time and three punctures in the last 8 miles caused the delay in reaching the last. Six creeks without bridges were crossed, the water at times coming up to the gear case.

The Man Who Pays

wants the **BEST** his **MONEY** will buy. That's the reason so many purchase the Model A "Light" Motorcycle; it costs but **$185.00/100**. Its value is $210.00/100. There is satisfaction in saving $25.00. There is greater satisfaction in knowing you have purchased a motorcycle of quality, - one that is positive in its action, simplicity in its arrangements and operating power, and speed that more than satisfies. Guaranteed for the year.



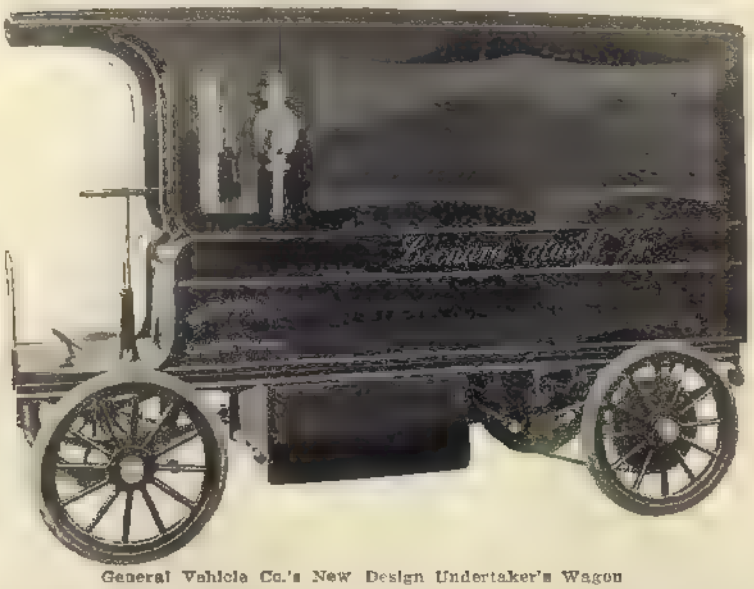
MODEL "A"

AGENTS WANTED THROUGHOUT THE WORLD

CATALOGUE AND TERMS UPON REQUEST. *Address Motorcycle Dept.*

THE LIGHT MFG. & FOUNDRY CO.

HANOVER & 4th STS., POTTSTOWN, PA.



General Vehicle Co.'s New Design Undertaker's Wagon

General Vehicle Co.'s Undertaker's Wagon

General Vehicle Co., Broadway and Sixty-second street, New York City, recently built the undertaker's wagon here illustrated. This wagon was built for Leonard Rouff and is capable of going 35 miles on one charge of the battery at an average speed of 10 miles per hour. In this wagon the General Vehicle Co., has employed its 1908 type of construction, in which is used a large single motor, driving a countershaft with Morse silent chain and roller chains to the rear wheels; internal expansion brake; continuous torque controller and solid tires thruout. This vehicle is arranged with double opening in the rear and a removable shelf for carrying camp chairs and the box on the floor of the vehicle.

The "Swinehart' Detachable Clincher Rim

The Swinehart Clincher Tire and Rubber Co., Akron, Ohio, have recently placed on the market a new detachable rim, which is used as a retainer of different kinds of rims. It is suitable to hold a single-piece clincher rim or dual tires already mounted on rims, as well as the Swinehart detachable clincher rim, and since the retainer is adjustable, it is particularly adapted to the use of their detachable and adjustable truck tire.

The only tool required when attaching this rim is a hardened piece of wire with which to operate the right and left-hand threaded endless band which acts as a retainer as well as an adjuster. Should a tire, after becoming worn, loosen at the base, it is only necessary to tighten up the side flanges and follow up with the endless retaining wire which rests upon a cone and can be moved inward ½ in if necessary. It is claimed that old tire can be removed and the rim applied with the tire already mounted, in less than twenty minutes. Truck users greatly appreciate the advantages of this rim, as its use prevents delay in their delivery service when replacements are necessary. They find it no longer necessary to remove wheels from cars for the purpose of having tires

The "Swinehart" Detachable Clincher Rim.

applied, as they can receive the tires direct from the factory mounted on light clincher rims.

A new tire is also about to be placed on the market by the Swinehart Co., the principal feature of which is the mortising of the cross wires in a heavy coating of fabric. This hardened fabric securely holds the ends of the cross wires, which are entirely protected from mud and sand, and the makers guarantee that the tire will be perfectly sound at the base when the top is worn down to the channel.

4½ H. P. engine lengthwise and horizontal. Belt drive. Please answer questions in next issue. I am a subscriber.—E. P. COLE.

To fire at regular intervals the crank shafts should be opposed the same as the cylinders. Where both connecting rods are attached to the same crank arm the impulses cannot take place at regular intervals.

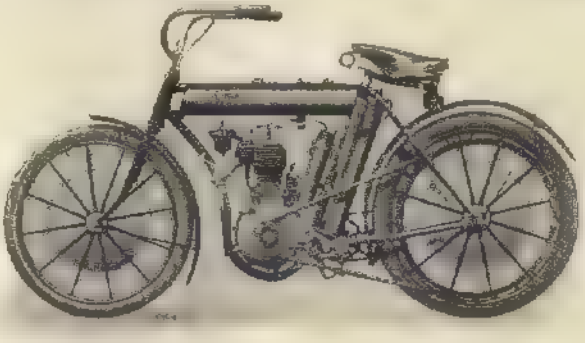
Your design in a general way is good and the machine should be a success if the details are carried out in the proper manner.—C. H. M.

(If your motor actually develops 4½ H. P., it ought to stand a gear of 3 to 1, which will give you at 2,000 R. P. M. of the engine, 51.5 miles per hour. If you desire high speed and are willing to sacrifice some on hill climbing ability, you might even use 2½ to 1 giving about 61.8 miles per hour.—Ed.)

"Indestructible" Wheels for Motor Cycles

The Indestructible steel wheel which was heretofore only furnished for automobiles and trucks, has recently been applied to the motor cycle and is now produced by the Indestructible Steel Wheel Co., 1221 Michigan Ave., Chicago, Ill., in suitable sizes for this purpose.

The claims made for these wheels are that they can never warp, swell or shrink, besides being extremely strong and durable. All danger of getting twigs, and other obstructions between spokes is also eliminated by the use of this make of wheel and, in short, the several advantages claimed for it in automobile use can practically all be credited to it in its new field of usefulness.



Armac motor cycle fitted with "Indestructible" steel wheels.

S. F. Heath, New England agent for Thiem motor cycles, who has maintained a temporary office in Newtonville, Mass., has now secured permanent quarters at 288 Columbus avenue, Boston. Mr. Heath is a pioneer in the motor cycle business.

Mr. W. F. Mann, of the W. F. Mann Motor Co., of Yonkers, N. Y., who has during the past year represented the F. N. motorcycle in his home city, will open up a motorcycle establishment in Boston at 1000 Boylston street, to handle the F. N. Big Four and possibly one or two other machines

The road officers of the New York Motorcycle Club for this year are promoting a number of century and reliability runs and hill climbs. The initial contest of the season will include a century and a double century, to start on Decoration Day, Saturday, May 30th, and finish Sunday, May 31st. The route will be over the Patchogue and Southampton course.

Motor Cycle Catalogs

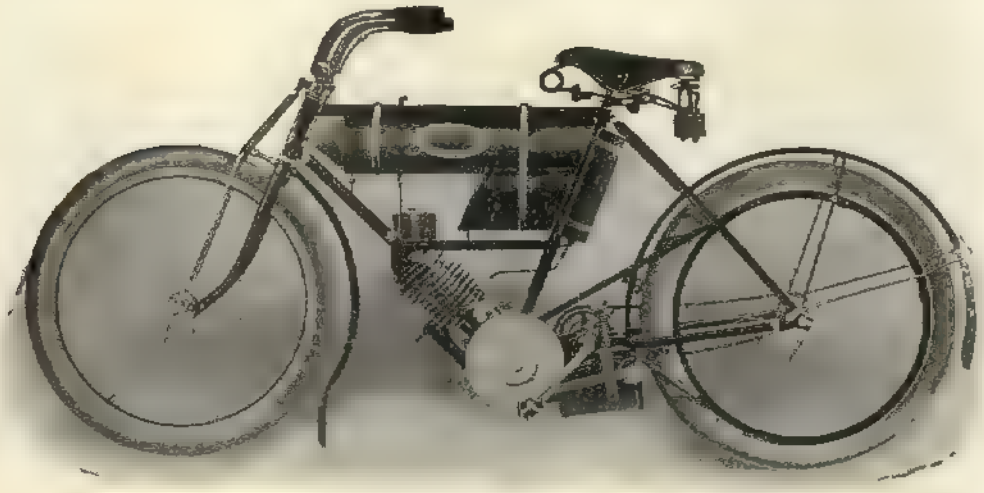
Whipple, "the motorcycle man" of Chicago, Ill., has sent us a most comprehensive assortment of circulars descriptive of many motorcycle sundries. Practically everything needed by the motor cyclist is mentioned and among the new things is a motorcycle headlight and generator which sells at $10, including a bracket for the generator. Most of the leading makes of motorcycles are also included in the line represented.

In the 1908 catalog of the Corbin-Duplex coaster brake, Corbin two-speed coaster brake and Corbin front and rear hubs, are very excellent detail illustrations of these products of The Corbin Screw Corporation, of New Britain, Conn., and it is altogether a very creditable publication. The operation of the coaster brakes is explained fully, showing that the company appreciates the value giving complete information regarding its products. The cover design includes an illustration of the coaster hub, accompanied by the words, "Corbin Hubs, 1908," all embossed and standing out in pure white against a light brown background.

A new motorcycle organization has been formed in Boston, which will be known as the Massachusetts Motor Club, and is composed of devotees of the sport in Greater Boston.

F. A. BAKER & CO.
MOTORCYCLE
SUPPLIES
SEND FOR CATALOGUE
37 Warren St., New York

THE AUTO-BI



A Successful Motor Cycle

Should have plenty of power to climb hills easily.

Should have a practical (tried and tested by the public) method of transmitting power from engine to rear wheel.

Should have a grip control which will not tire the wrists by hanging on to a loose grip, and yet be under the instant control of the rider.

Should be equipped with an auxiliary exhaust port to keep motor cool, and add to power and speed, by getting rid of exhaust gases quickly.

Should have motor hung as near the center of machine as possible and very low to make machine steer easily and so the rider does not have to *straddle a hot motor*. Motor should be placed as near horizontal as possible so that explosive force and vibration is exerted on a line with momentum of machine and rider, thus doing away with vibration

Motor should have solid forged crank shaft *hardened and ground* to *size* (all automobiles use one piece shafts; why?) inside of motor should be easily accessible without removing motor from frame. Cases split horizontally, as in the Auto-Bi, allow this.

Truss spring cushion forks are indispensable for safety and comfort.

It should be equipped with flusher valve for easy starting at all times.

It should have ample tank capacity for touring purposes.

It should present a graceful pleasing appearance with each part in harmony and built for the particular purpose to which it is put.

A SUCCESSFUL AGENT

Will insist on securing a motorcycle which includes each of the above features. This will assure him of a machine which will be easily sold, and will stay sold, and a motorcycle which he can recommend and build up a business with.

A SATISFIED CUSTOMER

The buyer of the 1908 Auto-Bi will get a machine that is guaranteed for the year. It is safe, comfortable powerful, speedy, can be easily controlled by the novice, and is a strictly high grade machine, with many features originated by us and found only on the Auto-Bi.

CATALOGUE AND TERMS ON REQUEST

The Auto-Bi Company 1453 Niagara St. Buffalo, N. Y.

The Jones Taximeter

Joseph W. Jones, of the Jones Speedometer Co., 76th and Broadway, New York City, manufacturer and inventor of the Jones Speedometer, has recently brought out a Taximeter, which is mechanically simple and shows a high quality of workmanship, general appearance and finish.

The instrument is about 7 in. in diameter by 4 in. in thickness. It has a silver dial face in front with figures indicating the rate or tariff, the total fare to be paid by the passenger, and a separate indication for the extras. The reverse side of the instrument has a dial giving a total of all moneys received by the driver, the total mileage made by the cab and the trip mileage, which can be reset by the driver if so desired. Also a separate count of the number of trips with single and with double tariff. A vacant sign is also displayed on the reverse side of the instrument which, when a passenger enters the vehicle, is thrown to the right by the driver

The Jones Taximeter, front view

until it assumes a horizontal position, indicating on the dial tariff (1) and at the same time ringing up an initial charge of 30 cents for the first half mile. After the first half mile has been traversed an additional charge of 10 cents for each quarter mile is added to the total. In the event of there being a trunk or other baggage for which there is an extra charge, the driver turns a knob on the reverse side of the instrument which causes the extra charge to be indicated under the heading "Extras" on the dial, and also adds the amount of the extra charge under the head "Total fare."

On the passenger leaving the vehicle and paying the fare indicated, the driver throws the vacant sign to the vertical position, which instantly resets the figures indicated under "Total fare" and also those under "Extras" to zero. In the event of four or more passengers entering the vehicle, the driver throws the vacant sign to the left until it assumes a horizontal position when the same initial charge is made, which after a third of a mile has been traversed an additional charge of 10 cents for each one-sixth of a mile. The Taximeter, in addition to containing a counting mechanism actuated by the mileage, also contains a clock mechanism, which, when the "Vacant" sign is down and the vehicle is standing, causes a charge of 10 cents to be registerd for each six minutes of waiting, and a like amount is added to the total. This, of course, is all arranged automatically so that the driver has no control over the instrument except to start it and stop it.

Back view of the Jones Taximeter

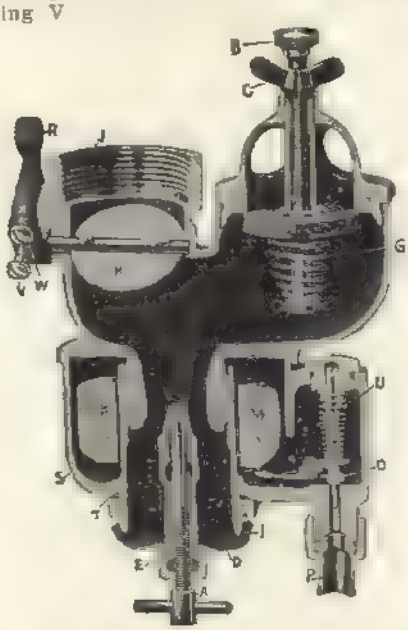
One of the most important improvements is the "Totalizing" feature, which gives the entire amount due from the passenger in a single total without the necessity of adding the tariffs and the extras. Also, the entire amount of money due the cab company, such as initial charges, additional charges and extras, are given in a single total. The Taximeters are now being manufactured, and will be leased to operators of motor taxicabs, horse cabs, etc., and the Jones Company attaches, repairs, maintains and guarantees the instruments. The company believes that this is the only satisfactory method on which to operate the instruments.

Kraeuter & Co., 577–579 Eighteenth avenue, Newark, N. J., makers of pliers, bearing scrapers and other small tools of interest to automobile makers and repairers, have just completed a large addition to their drop forging plant and are now prepared to handle orders for special drop forgings from the plainest to the most intricate.

1908 Kingston Carburetors

The well known Kingston carburetor, manufactured by Byrne, Kingston & Co., Kokomo, Ind., has been placed on the market for the 1908 season with a number of improvements, all of which are incorporated in the seven new models offered

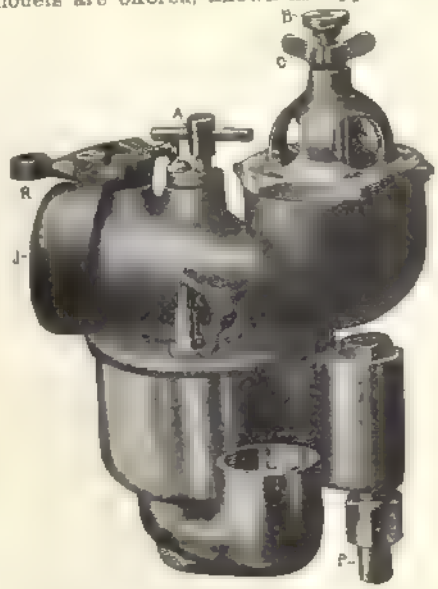
One of the main features of this year's models is that the auxiliary air valve adjustment is placed on the top of the carburetor, thereby making it easily accessible and adjustable from the top of the car or boat. The float feed arrangement has also been materially changed, the gasoline inlet being normally held closed by means of the pressure exerted by the adjusting spring V



The 1908 Kingston Carburetor, Type C, vertical outlet, sectional view A, Needle valve B Auxiliary air-valve adjusting screw; C, Thumb locking nut; D, Priming trap and shield thru which air passes E, Packing nut, F, Auxiliary compensating air-valve; G, Auxiliary compensating air-valve spring, H Auxiliary air inlet valve cage; I, Normal inlet J, Gas outlet to motor; K, Throttle valve L, Spraying nozzle; M, Cork float, metal sheathed; N, Float valve operating lever, O, Spring float valve P, Fuel inlet union connection, Q Primer or flusher, R Throttle operating lever S [illegible] of float cup which is [illegible] to spray nozzle, Q Center member through which the constant air and fuel passes also used to lock float-cup in any required position U Spring for float-valve; V, Throttle adjusting screw W, Locking screw for throttle adjusting screw X, Locking screw for needle-valve on horizontal type; Y, Fuel entrance from constant level-cup to spraying nozzle, Z, Body of carburetor

The auxiliary air valve is operated by the suction from the engine, thereby acting in the same manner as an automatic poppet valve. The valve can be adjusted to open any distance to suit all requirements. This adjustment is made by means of the adjusting screw B. The wing nut C is used for locking the setting by turning it tight against the valve cage H. The valve can be removed for inspection purposes by simply unscrewing the valve cage H.

All the 1908 models can be furnished either with or without connections for piping warm air. For marine purposes two models are offered, known as Type F and



The 1908 Kingston Carburetor, Type D, with Horizontal Outlet.

Type G, respectively. One model is also furnished for motorcycle use. These carburetors are made in ¾, 1, 1¼, 1½, 2, 2½ and 3-inch pipe sizes. Either horizontal or vertical outlets are furnished with these carburetors in all sizes, except the 2½ and the 3 inch size, which are made horizontal only.

The prices are $12.50 for the ¾-inch pipe size up to $50 for the 3-inch pipe size. The warm air connection is furnished extra from $2.50 to $5.00, according to size.

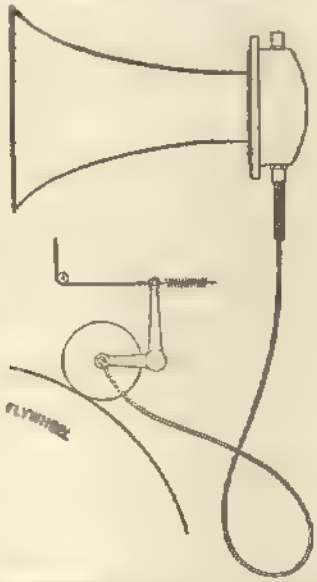
Continental Tire Now Made In America

The Continental tire, formerly imported from the parent factory of the Continental Caoutchouc Co., at Hanover, Germany, is now being made in America in the large plant of the Revere Rubber Co., at Chelsea, Mass. The American product first made its appearance on October 24th, on which date there also went into effect a new scale of American prices, in the making of which both freightage and import duties are eliminated.

The Pittsburg Automatic Vise & Tool Co., of Pittsburg, Pa., was awarded a gold medal for their vises by the Jury of Awards of the Jamestown Exposition. This award was made on the entire line exhibited.

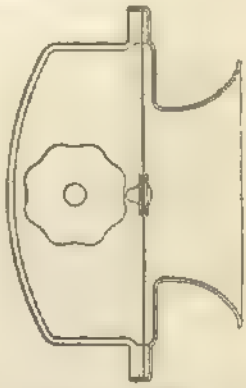
The "Klaxon"

The "Klaxon" is a new type of alarm for motor cars and its name is derived from the Greek word "klaxos" meaning a "roarer." It is the invention of Mr. Miller Reese Hutchison, Madison Ave., N. Y. City, and is manufactured by Lovell-McConnell Mfg. Co. of Newark, N. J., either of whom are prepared to promptly fill orders This alarm consists of only two parts, a Vanadium steel diaphragm, and a cam-wheel. As this cam wheel is revolved the cams strike against a hardened steel anvil affixed to the centre of a diaphragm, causing the diaphragm to vibrate violently and produce a sound, which besides being distinctive has tremendous volume and can be heard at a great distance. The intensity of sound, however, is regulated at will and covers the entire range from a low "growl" to a piercing "shriek."



The mechanically driven Type L "Klaxon"

The "Klaxson" is put out in two forms, one for mechanical and the other for electrical drive. The mechanical drive outfit includes the "Klaxon" complete in a highly ornamented polished brass case which may be attached to either side of the dash, a flexible shaft connected to the cam wheel (or rotor) of the "Klaxon" and a friction wheel that is grooved on its periphery, the apexes of the ridges formed by the grooves being knurled so that the wheel is sure of gripping the periphery of the fly-wheel. Any grease or other substance that is on the fly-wheel is forced up into the grooves, as the knurled edges cut thru the film of grease, oil, etc., and take hold without slippage The friction wheel is mounted on a substantial bracket screwed to the dash at any convenient point. A brass chain leads from an arm of this bracket to a point on the steering column convenient to the hand of the operator. A pull of the chain brings the small friction wheel into contact with the fly-wheel and causes the "Klaxson" to "roar" or "growl" according to the pull given the chain. When the chain is released the friction wheel flies back against a brake which instantly stops its revolution



Type S Klaxon, showing diaphragm and cam wheel.

The electrically driven "Klaxon" includes a small but powerful motor which is operated from the ignition current or from a separate battery. It is actuated by a push button located on the steering wheel, or by a chain if desired.

Two styles of the "Klaxon" are made; Type S for use in cities and immediate suburbs and Type L which throws the sound far ahead and is especially suited for country use or on motor boats. Type S, either type of drive, lists at $35 and Type L at $40.

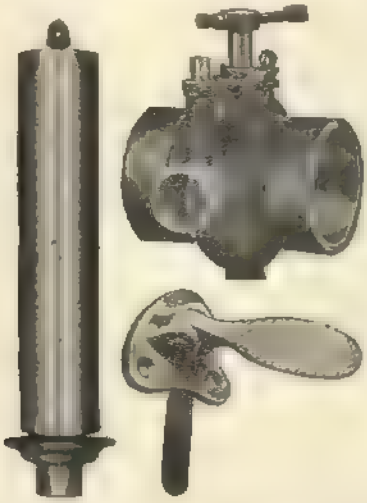
The Goodyear Tire and Rubber Company, Akron, Ohio, is running a night force in its automobile tire department to keep up with orders, which surely is an impressive indication of the condition of the tire branch of the automobile business as well as of generally improved conditions.

Dow Portable Electric Company of Braintree, Mass., makers of ignition apparatus, have arranged to sell their entire output thru the Geo. Q. Hill Company of Boston, Mass. There is no change in their local representatives, however, W. J. Connell, 36 Columbus Ave., Boston, continuing as New England representative, Factory Sales Corporation, 235 Randolph St., Chicago, western representative and L. H. & B. J. Bill, 132 Valencia street, San Francisco, Pacific coast representative. Mr. Dow, with whom Mr. Theodore M. Muller, graduate of Stuttgart University is now associated, will devote his entire attention to the manufacture of the Dow line. Mr. Muller was until recently with Robert Bosch of Stuttgart, Germany.

"Norwall" Four-Tone Motor Chime

The accompanying cut shows the Norwall four-tone motor chime, manufactured especially for use on automobiles, motor boats and launches. The cut also shows the foot pedal and operating valve used in connection with the chime. The device is manufactured by the Barco Brass & Joint Company, 56 North Jefferson street, Chicago, Ill.

The chime is 2½ inches in diameter and about 14 inches in length. It is made of special seamless brass tubing, having four compartments of harmoniously blended notes. The chime can be used in connection with any class of motor, and will pass Government inspection for launch work



The "Norwall" Four-Tone Motor Chime Pedal and Valve.

and under favorable conditions the manufacturers claim can be heard for a distance of five miles or more. A double opposed butterfly system is used in the construction of the valve, which is unaffected by heat or soot and throttles the tone perfectly. The valves are made in diameters of 1½, 2 and 3 inches and will fit standard iron exhaust pipes of corresponding size.

The price of the chime, complete with pedal and 1½-inch valve, is $9.00; with 2-inch valve, $9 50, and with 3-inch valve, $12 50. This concern also manufactures a fuel strainer cast in one piece of bronze metal, which precludes the possibility of any leakage. The strainer is made of fine mesh wire cloth and cotton gauze, both of which can be easily removed and cleaned. In this strainer the liquid is strained upwards, all dirt and sediment falling to the bottom, thus requiring a minimum amount of cleaning. A special cleaning device with thumb lock nut is placed underneath the sediment chamber, so that the strainer may be cleaned without disconnecting it. The pipe connections are made for ⅛-inch soldered joints, special sizes being made to order. The list price is $2 00.

This company makes a specialty of manufacturing all kinds of light articles in brass and iron to order, such as automobile specialties, metal patterns, also special tools for working in brass.

Recent Additions to Firestone Plant

The accompanying cut shows the new four-story addition made to the Firestone Tire and Rubber Company's plant at Akron, Ohio, this addition giving the concern 47,900 sq. ft. more floor space.

The first floor is devoted to calenders, mills and heavy machinery, and to a 50 per cent. increase in the facilities for small sizes of the side wire tires, such as are used on motor-driven buggies. The second and fourth floors are devoted to the lab-

New Addition to the Firestone Tire and Rubber Company's plant at Akron, Ohio.

oratory, rubber drying rooms and to two large size vacuum drying machines for drying crude rubber after it has been washed and cleaned. It is reported that the sales of Firestone tires for the first three months of this year were the biggest ever made by the company, and were twice as large as in the same period last year. The factory is working both day and night.

Mr. Carl Kaufman, General Manager and Treasurer of the Motor Car Equipment Company, 55 Warren Street, New York City, is sailing to Europe on April 7th, where he will spend two months in getting in touch with the leading manufacturers of Automobile Equipment and Supplies.

We are informed that in accordance with its long-established custom of making early deliveries of its product, the Packard Motor Car Company, of Detroit, is busy to the full capacity of its immense plant, getting out the last 400 cars of this season's output. Already one thousand 1908 Packard "Thirties" have been delivered to purchasers, and the two thousand men at work in the different departments of the factory, which covers a floor space of eleven acres, are now turning out cars at a rate which will probably complete the annual program of production on schedule time.

The Light Model "De Luxe" Twin Cylinder

This is the latest model brought out by the Light Mfg. and Foundry Co., 4th and Hanover Street, Pottstown, Pa. The design of this model is a combination of American and foreign ideas which makes it a long, low rakish motorcycle giving it a very sporty appearance. Comfort has been considered, the frame being 20 inches high with a wheel base of 60 inches, while a 4¾ inch clearance is given the motor. The motorcycle is equipped with the Light Spring Fork and the new "V"-shaped handle bars with double grip control.

Special attention has been given to the proper distribution of weight. This motorcycle weighs as much on the front wheel as on the rear. The motor is hung the exact equal distance between the front and rear wheels and at the lowest point of gravity making it not only comfortable and one that is easily controlled, but the possibility of skidding is greatly eliminated. The seatpost instead of coming out of the top of the seatpost mast, slides in and out of the top bar, thus permitting the saddle to be placed in any position over the rear wheel, so that a man with a 30 inch leg measurement can straddle the saddle and still have his feet on the ground, if so desired.

The long wheel base combined with the Light "Yesitisa" spring forks, long handle bars and equipped with long flexible rubber grips eliminates all vibration. The motor employed in this model is the "Thor" 5 H. P. double cylinder with a Sims-Bosch magneto. The carburetor sets forward of the front cylinder and in such a position that it does not interfere with the cooling of either cylinder. A separate exhaust pipe is supplied for each cylinder which continues down into a double muffler, of Light Radio type which makes the machine absolutely silent. The left grip operates the carburetor throttle. The tank fitted on this machine holds two gallons of gasoline and two quarts of lubricating oil sufficient to carry the machine for a distance of one hundred miles. The oiling is done by a sight feed cup or measure which can be operated by the rider while in motion.

The wheels are 28 inches equipped with 2½ inch tires either G & J, Goodrich, or Empire. The transmission is a combination of gears and chain, the reduction of the gearing being made in the motor itself, making it practically a direct drive. A ⅝ pitch roller chain is employed with a yielding sprocket on the rear wheel. The machine will run at all speeds of from 6 to 60 miles per hour. The price of this machine is $350 with magneto ignition and $300 with battery ignition.

The Light Model "De Luxe" 5 H. P. Twin Cylinder Motorcycle.

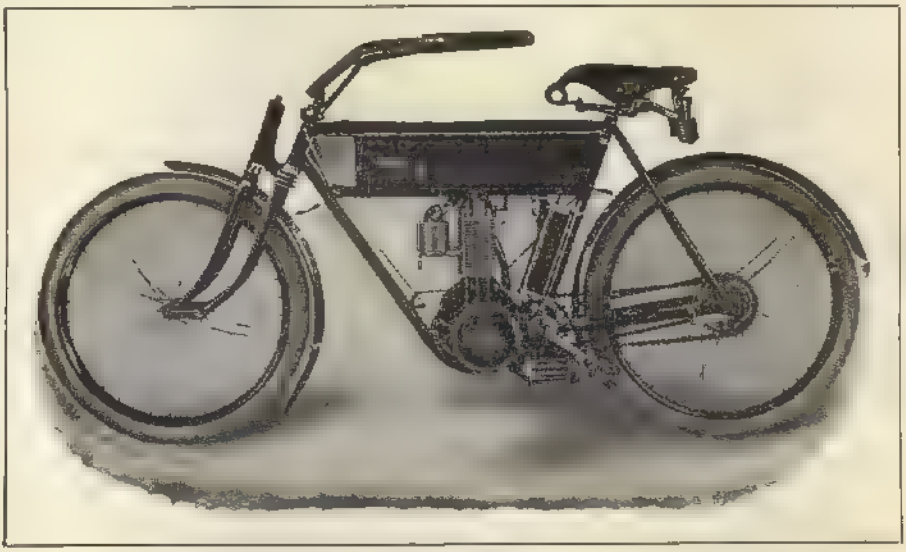
It is said that in Beckenham, England, the fire master has installed a motorcycle equipt to carry two men and a light extinguisher, for the purpose of answering first alarms on short notice.

Belleville, Ill., will have a motorcycle and bicycle meet on Sunday, May 17, on the half-mile track at Priester's Park. Three events for motorcycles and one for bicycles are included in the program.

H. E. Toms, 10 Ossian Street, Danville, N. Y., has designed a unique but neat motorcycle with an opposed motor and V belt transmission. The wheel base is 56 in. and the frame is 21 in. in height. He wants to receive catalogs from makers of motorcycle parts and supplies, and he also wishes to interest capital for the purpose of getting his machine on the market.

In order to promote a high standard of efficiency of its factory and to maintain the same, the Miami Cycle & Mfg. Co., of Middletown, Ohio, has decided to distribute $100,000, or one-fifth of the capital stock, among the managers, heads of departments and other employes. Ten thousand dollars is to be distributed among the workmen as premiums for suggestions, faithful service and attention to duties.

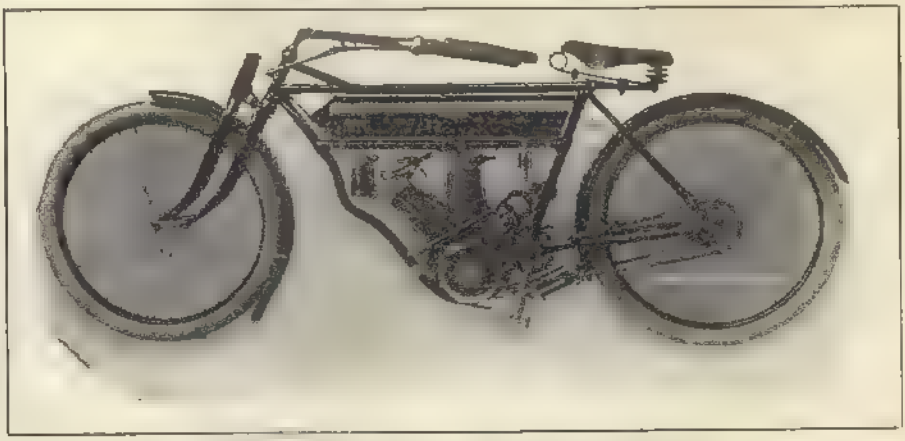
KING QUALITY
The LIGHT MOTORCYCLES



MODEL B

MODEL B 3 H. P. Gear drive, "YESITISA" Spring Forks, "Radio" Muffler, "V" shape Bars, Grip Control; Speed, 4 to 50 miles per hour. **PRICE, $225.00.**

MODEL DE LUXE. Light. 5 H. P. Twin Cylinder, 20 in. frame, 58 in. wheel base. Motor, 4¾ in. from the ground, 2½ in. Clincher Tires. Tank capacity, 2 gals. gasoline, 2 qts oil. Our muffler arrangement makes the exhaust SILENT, without back pressure. Speed 6 to 60 miles per hour.



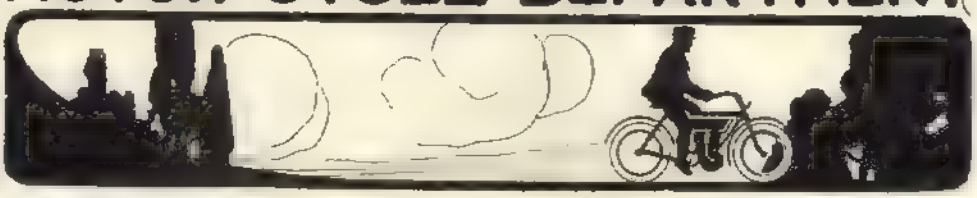
PRICE, $300.00—with Magnetos—$350

FURTHER PARTICULARS, ADDRESS MOTORCYCLE DEPT.

THE LIGHT MFG. & FOUNDRY CO.

HANOVER & 4th STS., POTTSTOWN, PA.

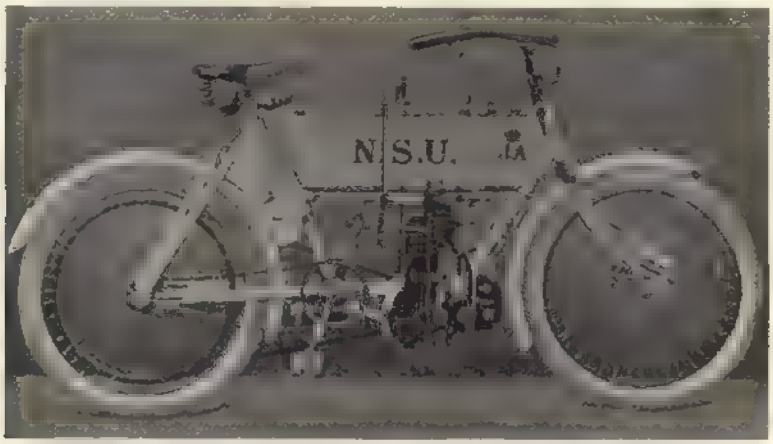
MOTOR CYCLE DEPARTMENT



1908 N. S. U. Motorcycles

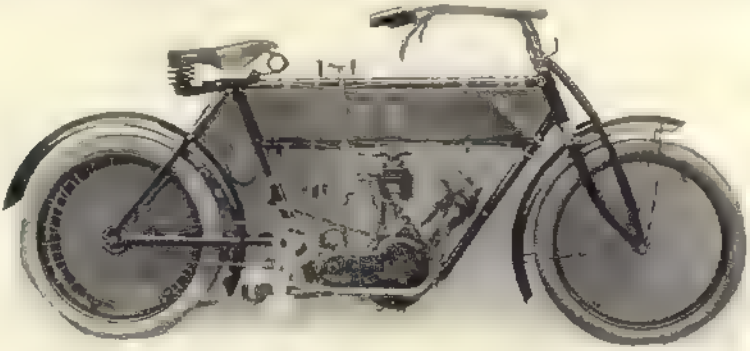
For the 1908 season the N. S. U. Cycle and Motor Co., are offering the following models: 1¾ H. P., $210; 3 H. P., $230; 3½ H. P., $242; 3¾ H. P., $255; 4 H. P., twin cylinder $300; 6 H. P., twin cylinder $320, and 6 H. P. twin cylinder with fore car. The N. S. U. machines are handled by J. F. McLoughlin, 148 E. Forty-ninth street, New York City.

The accompanying cuts show the single and twin cylinder models. The valves are mechanically operated. The ign tion is by Eisemann magneto on the 3, 3½ and 3¾ H. P. models, and by Simms-Bosch on the 1¾ H. P. and twin cylinder models. The 3, 3½ and 3¾ H. P. models are fitted with 24 and 26-inch wheels. A band and a rim brake are provided. Lubrication is by means of an oil pump conveniently located. The drive is by a belt made of a combination of rubber and canvas. The 1908 models are all fitted with a new front spring fork. The wheel rims as well as the fork ends are nickel plated. The single cylinder machine is made with a shorter wheel base than the regular model for racing purposes and lists at $15.00 extra.



N. S. U. 1908 single cylinder motorcycle, 3, 3½ and 3¾ H. P., listing at $230, $242 and $255.

The twin cylinder models have a 59-inch wheel base and a 20-inch frame. The wheels are 26 inches in diameter. Extra large tanks are provided. A two-speed gear and free engine pulley are furnished for $33.00 extra, and a free engine clutch for $16.00 extra. The 6 H. P. machine with non-convertible fore car is $500, which includes two speed gear and free engine. The fore car can be purchased separately for $150. The new N. S. U. front fork lists



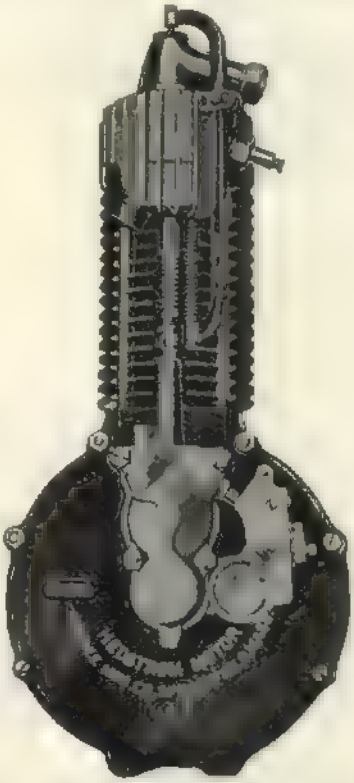
N. S. U. 1908 twin cylinder motorcycle, 4 and 6 H. P., listing at $300 and $320, respectively.

at $18.00 extra for any of the former models, and at $15.00 when applied to the new machine. In the regular road model the magneto is placed above the crank bracket, the saddle over the seat mast and the muffler behind the crank bracket. The N. S. U. Company will establish a branch in this country at an early date.

1908 Indian Motorcycles

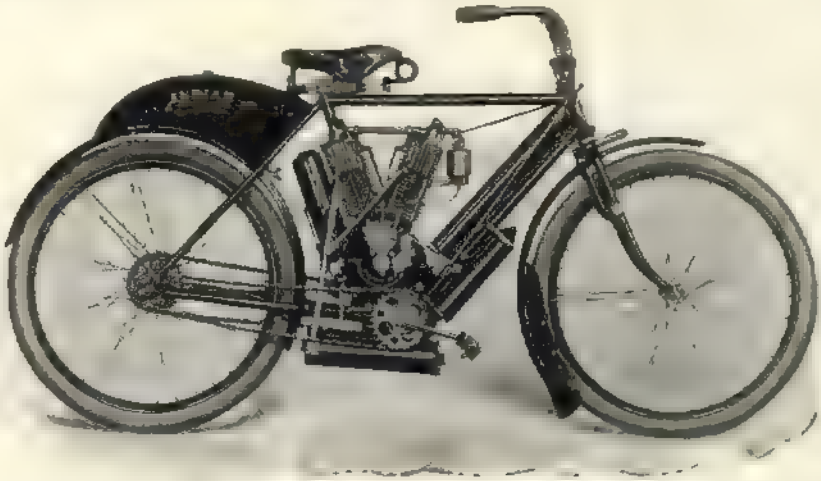
The 1908 Indian line of motorcycles manufactured by the Hendee Mfg. Co., Springfield, Mass., consists of a 2¾ H. P. single cylinder; 3½ H. P. single cylinder; 5 H. P. twin cylinder, and tri car or delivery van on the single cylinder or two-cylinder.

Some features not mentioned in the description published in our December, 1907, issue, page 308, are here enumerated. The twin cylinder Indian here shown, has a 2¾-inch bore by a 3¼ inches stroke and can be furnished with automatically or mechanically operated inlet valves according to the purchaser's option. The carburetor is the Hedstrom improved automatic compensating carburetor. The control is by the Indian patented, leverless, double grip. The right grip controls the electric spark and the left grip controls the throttle. This model is capable of making speeds up to 60 miles per hour according to gear. The frame is made of seamless tubing, 1½-inch top, 16 gage, 1¼-inch bottom, 14 gage. All joints are internally reinforced. Its height is 22 inches. The wheel base is 51 inches. The transmission is by roller gear drive from the engine to the countershaft. A Corbin-Indian duplex motorcycle coaster brake is fitted. The tires are 2¼-inch G & J, mounted on hollow steel rims finished to match the frame. The machine weighs 135 pounds, and is finished in Royal Indian blue, all bright parts are nickled on copper. An option is given on either black or Indian red. A tanden attachment is furnished with handle-bar, but without saddle, at $15.00 extra.



Exterior view of the Hedstrom motor, showing the new mechanical valve action.

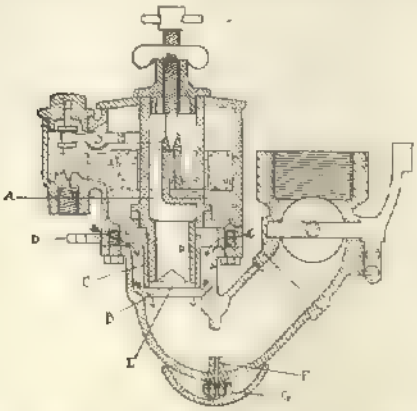
The single cylinder machine is similar in construction to the double cylinder machine with the exception of the power plant.



The "Indian" 1908, 5 H. P. twin cylinder motorcycle; stroke 3¼ inches, bore 2¾ inches, 28-inch wheels, chain drive, 2¼-inch G & J detachable tires, mechanical or automatic inlet valves, weight 135 pounds. Price, $250.

The 1908 "Palmbla" Syphon Carburetor

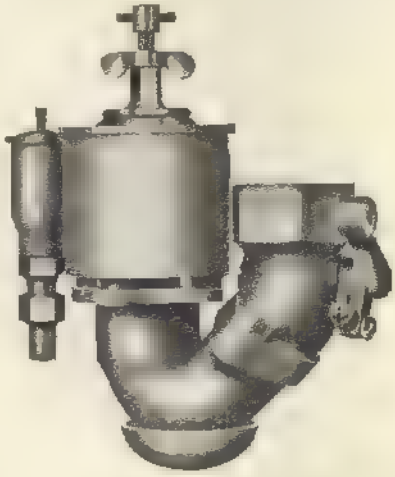
The New Model 1908 Palmbla Syphon Carburetor, made by the North Chicago Machine Co., of North Chicago, Ill., embodies some of the principles of their 1907 model, but is entirely new in its style and method of operation. The new method used, the syphon, while old in other mechanical lines, is new in carburetor work.



The "Palmbla" Syphon Carburetor, sectional view, lettering explained in text.

This carburetor has but one air intake and as it has no auxiliary air valve, it dispenses entirely with any moving parts or valves. It has only one adjustment (gasoline), and is said to give a uniform mixture at speeds ranging from 300 to 2500 R. P. M. The carburetor works on the same principle as the well-known steam syphon water ejector or lifter. Referring to the sectional view. A indicates an air-tight tube in the centre of the float chamber, with a gasoline feed nozzle in the centre of same. E is a cone concentric with and fastened to lower end of tube A. C is a loose sleeve fitted on the outside of lower end of tube A and is moved up or down by handle D. This varies the air opening at B to suit different size motors. B is a fixed opening and is normally set at its lowest point. F is a little round base at the bottom of the curved mixing tube. A small hole is drilled through to connect with the priming cup G. Arrows show the air intake openings. The float chamber and the throttle are ordinary construction. The 45-degree flange connection at H permits of side or top outlet.

To operate the carburetor the needle valve at the top of carburetor is given one-half a turn, and the carburetor primed with a primer (not shown) until the gasoline shows in the priming cup at the bottom. The motor can then be easily started as the air passing thru at B comes in contact with the fuel coming from the air tube A, as well as to pick up more fuel from the bottom of the curved mixing tube. This will give a rich mixture for starting. After the motor is started, the air drawn in at air opening B comes in contact with stationary air at the lower end of the air tube A. The friction set up exhausts the air from the tube A, lowering the pressure and forcing gasoline from the fuel nozzle. At slow speeds, the friction is slight. This causes only a slight lowering of the pressure in tube A and but a small quantity of gasoline flows. As the speed of the motor is increased, greater friction of the air takes place at B, and a consequent more power of the pressure in the air tube A and a greater flow of fuel. Experiments have shown that the flow of fuel is in exact proportion to the air passing through at B with a fixed opening at feed nozzle. If the air opening at B is increased and opening in gasoline feed nozzle is increased by the opening of the needle valve proportionately, the same mixture can be had at all speeds of the motor with the exception that the motor cannot be throttled to as slow a speed as before. For spreading on the road with a light load, the handle D is moved, which increases opening at B. This has the same effect as an auxiliary air opening to intake pipe as used on some of the cars for speeding purposes. When the motor stops, the surplus gasoline feeding down the walls of the tube A collects at the base of curved mixing tube and gives a starting charge without priming.



The "Palmbla" Syphon Carburetor

This carburetor is made in ½, ¾, 1, 1¼ and 1½ in. sizes, and lists at $8, $10, $12, $16 and $18.

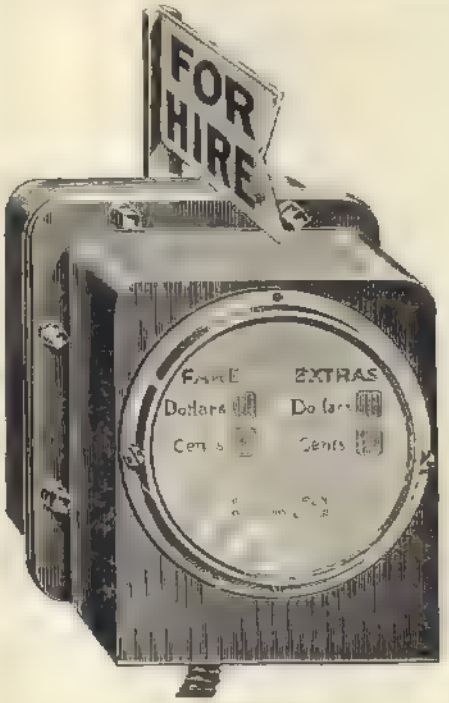
The Witherbee Igniter Co. has moved its factory and main offices from 541 West 43d St., New York City, to the third floor of the Motor Mart Bldg., 1876 Broadway. The new quarters contain over 8000 feet of floor space.

H. W. Doherty, formerly of the Corbin Motor Vehicle Corporation, of New York, has been appointed sales manager for the Cameron Car Co., and will handle the output of their Brockton and Beverly factories.

Smith & Sons Bring out Taximeter

S. Smith & Sons, Ltd., 9 Strand, London, 116 Broad street, New York City, makers of the well-known Smith speed indicators, clocks and compasses, have just brought out a taximeter for automobile use. We are informed that this taximeter has been thoroly tested, officially, in England.

The Smith Taximeter is 8 inches high, 7 inches wide and 5 inches deep, and is fitted with a dial which shows the fares as regulated by the attachment on the wheel and any extras which may be added during the trip. The Taximeter is worked



The "Smith" Taximeter.

on the well-known Horo-metric system, i. e., actuated by the time or distance according to the speed at which the vehicle is travelling. The instrument is of remarkably simple construction. Although constructed most substantially thruout, the Taximeter, which has a strong aluminum case, painted to suit the color of the vehicle, weighs only about 15 lbs. The clock used in this instrument is of S. Smith & Son's own manufacture, with two-day movement.

When the Taximeter is for hire a flag shows at the top of same, designating that it is not in use. Upon taking up passengers the deflection of the flag causes the initial minimum fare to appear, and the mechanism is then set in motion (as the vehicle starts) to record the distance travelled. The back of the Taximeter is furnished with a lock so the driver can lock all the dials and mechanism and leave the vehicle without fear of the Taximeter being tampered with.

Furthermore, there is a round disc with a set knob for use of the driver, which is set by him to the amount of extras chargeable to the passenger. There is aso a counter, for the use of the proprietor, which automatically records the amount actually received for extras by the driver Another counter is used also for the proprietor, which automatically records the exact amount the driver has received for fares on the Horo-kilometric register.

The attachment for the wheel is very simple, the pullying system being employed, an arm being actuated once for every turn of the wheel. This pulls the wire inside of a flexible shaft, which moves the driving wheel of the Taximeter one tooth. Thus the motion of the instrument is slow and consequently there is practically no wear on the working parts.

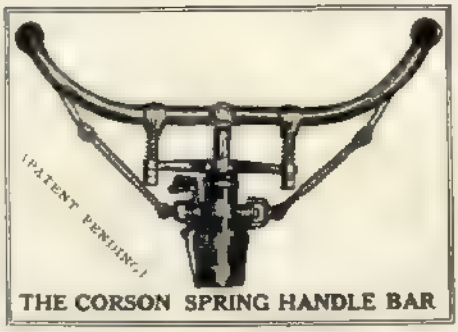
The "Mascot" Auto Clock

One of the latest dash clocks offered the trade is the "Mascot" auto clock, manufactured by the Angier Company, of 735 Boylston St., Boston, Mass., and which is shown herewith.

The "Mascot" Auto Clock and Mounting

The outfit consists of an Ingersoll, 24-hour stem wind and stem set watch, enclosed in a heavy, polished brass mounting. The clock and mounting presents a very neat appearance. List price is $4.

R. H. Willits Auto Accessory Mfg. Co., Alexis, Illinois, are putting out a preparation called "Car-Bo-Nit," said to remove carbon deposits from gasoline motor cylinders. Three tablespoonfuls of "Car-Bo-Nit" are poured thru the spark plug opening into a cylinder and left in it over night to disolve the burnt oil which holds the carbon deposits. In the morning the motor is started and run while throttled fast. To clean a spark plug its open end is turned up and filled with preparation which is allowed to stand two minutes. Price of the preparation is $1.50 per pint bottle.



THE CORSON SPRING HANDLE BAR

THE MOTORCYCLE SPECIALTY COMPANY

(E. H. CORSON, MANAGER)

258 Columbus Avenue, Boston, Mass.

Inventors and Manufacturers of the

"Corson" Motorcycle Stand; Combination Stand and Baggage Carrier; Show-Room, Repair-Shop and Individual Stand; Handle Bar Luggage Carrier; Spring Handle Bar; Tool Box and Holders; Chain Idler and Guides, &c., &c. ¶ Booklet of Motorcycle Specialties Mailed on Application.

1908 "Torpedo" Motorcycles

The Hornecker Motor Mfg. Co., Whiting, Ind., includes two new models in its line of "Torpedo" motorcycles for 1908, one of which has a Thor outfit, and the other an imported motor called the "Antoine."

Besides these models a twin cylinder Thor type machine listing at $275, will probably be ready in a few weeks. The placing of the motor and the disposition of its accessories on the 3 H. P. Model C, is like the usual Thor design, the motor being placed vertically in a low loop in the frame. The muffler is placed in front of the crank case and consists of two cylindrical chambers; in one the exhaust is expanded, and in the other is broken up so that the noise is deadened. As this muffler is said to produce no back pressure on the engine the maker claims that no cut-out is needed; hence none is provided. A conspicuous feature of this model is the placing of the crank hanger above the engine driving chain. The spring fork is the same that has been used for three years past, no improvement having been found possible. The tank contains fuel, oil, battery and coil. The battery comprises three dry cells which are strapt together with the coil. The equipment of Model C includes a "Person's Motor Seat" and 2¼-inch G & J or Goodrich tires. The weight of this machine is 125 pounds, finish, bright vermillion and list price $225. A side car attachment is furnished at $75.

The other new model is Model D, and it lists at $225, same as Model C. The 4 H. P. Antoine motor, by which it is driven, has a 3⅜-inch bore and a 3¼-inch stroke, and is placed vertically in the frame, which is not looped as on Model C, but carries attaching brackets at the ends of the seat mast and front stay, these brackets being bolted to the crank case, front and rear. A compensating sprocket is fitted to this model and its equipment includes a Splitdorf coil, Dunlop 2¼-inch tires, Mesinger motorcycle saddle, Thor coaster brake, Torpedo spring fork and Antoine carburetor. The machine weighs 150 pounds.

Model B Torpedo remains practically unchanged, but the price has been reduced to $150. It is driven by a 2¼ H. P. Thor motor, has the Torpedo spring fork, Thor coaster brake, compensating sprocket, Empire (imported) saddle and weighs 125 pounds.

A racing machine, known as Model E, weighing 110 pounds is also offered. Its general specifications are same as for Model C, but it is built lower, has a wheel base of only 44 inches, and is fitted with G & J 1¾-inch tires. Price is $225.

Motor-cycles

PRICES RANGING FROM

$40.00 TO $250.00

Write for List No. 125 of used motorcycles

This **GEER GREEN EGG.** Weight 155 lbs. 5 H. P. two-cylinders. Speed 5 to 50 miles per hour.

PRICE $225.00

Liberal discount to dealers.

Used Motor-cycles taken in exchange.

We furnish castings for eight different motors, 1½ H. P. to 5 H. P., air- or water-cooled

Our motor-cycle catalogue is one of the most complete ever issued. Write for copy

We have the best equipped repair shop in the country. Send in your machines.

HARRY R. GEER CO.

856 McLaran Ave. St. Louis, Mo.

Largest Motor-cycle house in the country.

The Massachusetts State police are to be provided with 13 new M.-M. single cylinder motorcycles; while the metropolitan police force of Boston will add one more to the number already in use

Twin Cylinder Indians and 1908 Indian Features

Anticipating some time ago the probability of a big demand for two-cylinder motorcycles, Hendee Mfg. Co., of Springfield, Mass., makers of the well-known Indian machines, as early as 1904 began designing and testing out twin-cylinder Indians and are therefore well equipt to meet the big demand that has developed this season. The Hendee Company have factory facilities for turning out 100 twin-cylinder Indians per week and are offering two models of this type, one a 5 H. P. machine listing at $250, here shown with magneto attached, and the other a 7 H. P. racer.

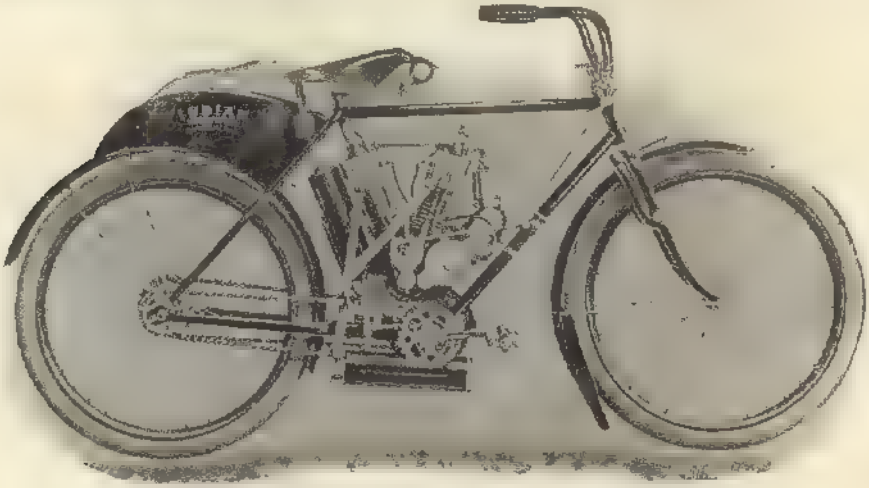
Believing the term horse-power, as commonly used in claiming engine ratings, to be deceptive, the Hendee Company has inaugurated the practice of rating its engines according to the cubic capacity of their cylinders, altho the horse-power rating is also given for convenience.

Mechanical inlet valves are used on all of the Indian models for 1908 excepting the 7 H. P. racer.

The new Indian mechanically operated inlet valve is worked out so simply that all objections formerly raised are said to have been overcome. One cam raises exhaust valve and operates intake valves properly. The inlet valve still retains its position over the exhaust valve so that every charge is drawn in over that member, aiding in the cooling immensely, and doing away with any possibility of overheating. The whole construction is simply an operating rod fastened to the exhaust valve lift, and passing thru a guide on the explosion head, and by means of single cam, depressing the inlet valve at proper intervals. The advantages are that under all conditions, a uniform charge of gas is drawn into the explosion chamber. The valve, being operated mechanically, always opens the same distance and at the proper time, there being no suction to be depended upon nor any varying springs to alter the proportion of the charge. This feature can readily be applied to all previous Indian models, and at slight cost.

Another feature of the 1908 Indians is an oil gage in the motor base, enabling the operator to know exactly how much oil is in the base and guarding against running the engine dry.

In response to a popular demand for magneto ignition, the Hendee Company gives an option on this form of ignition on all 1908 Indians. The extra cost for magneto ignition is $40 and the Bosch magneto is used. It is placed on a specially designed platform directly in front of the motor base, and connected to the make and break shaft by three enclosed gears. The accompanying cut shows the twin-cylinder, 5 H. P. Indian, with magneto attached.



The Indian 5 H. P. Twin Cylinder Motor Cycle with Magneto Ignition.

The 1908 Indian line includes a new 3½ H. P. model (26.96 cubic inches cylinder capacity). This machine resembles the 2¼ H. P. Indian in general appearance, but has a 3¼x3¼ motor, other dimensions and specifications corresponding. Price is $300. It weighs 130 lbs. with full road equipment, 115 lbs. stript. The 5 gallons of fuel carried will run the machine about 100 miles, the one quart of oil, 350 miles.

The main features of the 5 H. P., two-cylinder road model Indian have already been mentioned in these columns, but slight changes can be made to make it more suitable for short men or those who desire a low position, the saddle being set back on stays above the rear wheel in the place usually occupied by the tank, a torpedo-shaped tank being in this case placed on the top frame tube. A slight extra charge is made for these changes

New Two-Cycle Elmore Taxicab

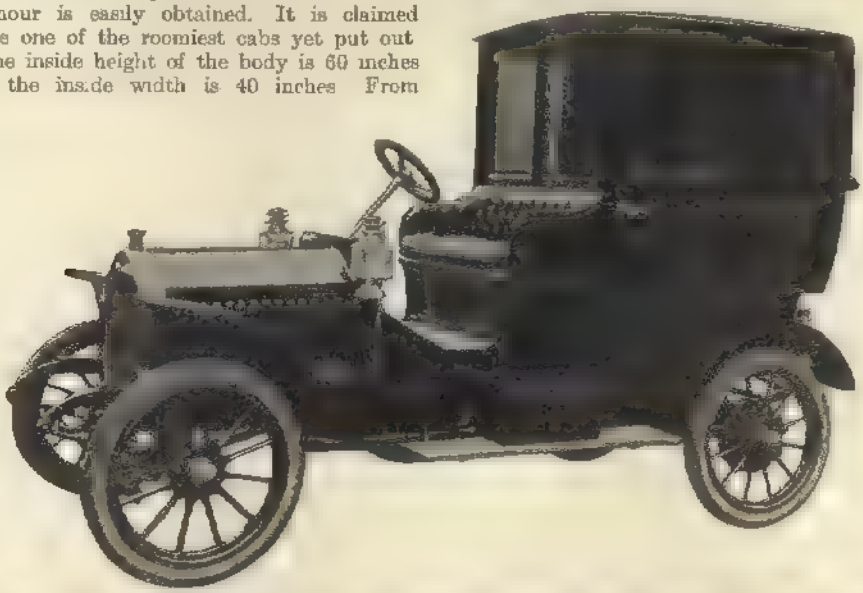
Elmore Taxicabs are now being shipped from the Elmore factory as rapidly as they can be assembled. For the present the entire output is being sent to Chicago, where Mr Owen H. Fay intends to install the first Taxicab service to be put in operation in the windy city.

These Taxicabs are built over the same construction used in the Elmore Thirty, which is the three cylinder, two cycle valveless car built by the Elmore Manufacturing Company. The cab is an exceedingly light one, weighing less than 2,300 pounds. The engine develops 24 horse power and is geared 3½ to 1, so that a speed of from 4 to 30 miles an hour is easily obtained. It is claimed to be one of the roomiest cabs yet put out

The inside height of the body is 60 inches and the inside width is 40 inches From the front seat to the back cushion is 45 inches The door is 22 inches wide and 54 inches high The distance between the back of the front seat and the front of the rear seat is 27 inches and the extreme height of the body from the ground is 90 inches. Three people can be very conveniently seated in the cab, while two people have plenty of room and to spare. The top, of landaulet pattern, lets down, making an open car

The upholstering is furnished either plain or in biscuit pattern, in either cloth or leather. Best quality of both covering material and curled hair is used The cushions are all extra length and are built on the best quality of oil tempered springs, and like the rest of the inside are furnished in blue. Arm straps are also supplied. The doors are operated by inside latches, and both the front and the door windows are of the drop pattern manipulated from the inside. The regular color of the Elmore Taxicab is dark green with a light red stripe.

The only other difference between this Taxicab and the regular stock chassis is the fact that the wheel base has been shortened slightly, it being but 102 inches. This makes the car very easy to handle as it can be turned around in the average street without having to back.



The New Two-Cycle Elmore Taxicab The chassis is practically the same as that of the Elmore 30 and is fitted with a three cylinder, 2 cycle engine of 24 H. P. The wheel base is 102 inches. The front and door windows are of drop pattern and the finish is in dark green Either leather or cloth upholstery is applied. The top, of landaulet pattern lets down making an open body

Demonstration of Alcohol as Fuel for Heavy Trucks

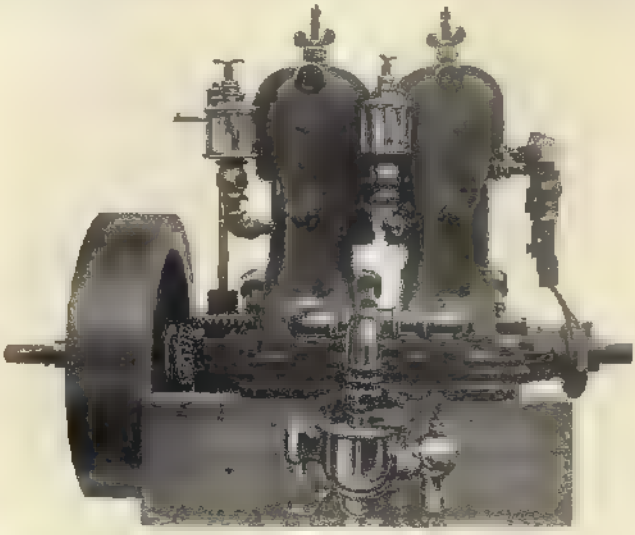
The Hewitt Motor Co., recently made a demonstration of alcohol as fuel in one of its 5-ton gasoline trucks, from its salesrooms in East Thirty-first St., New York City. No changes were made to the vehicle with the exception of placing a hot water jacket around the intake manifold, and raising the compression of the motor from 78 to 112 pounds by using longer pistons with dome shaped heads. The motor is rated at 32 H P. and has four cylinders 4¼ x 5½ inches. The first day's run with a 1000 lb. load demonstrated the flexibility of the motor, which could be run fast or slow with as much ease as if gasoline were used. Other runs made later with full 5-ton loads showed that the change of fuel did not lessen the capacity of the truck.

The American Locomotive Automobile Co., Providence, R. I., are now making 100 taxicabs for the William H. Search Co., of New York, which has the cab privilege of the Park Avenue Hotel, Holland House and the Waldorf Astoria, in New York City.

The "Whitehall" Model 8, 18 ft. 3½ H. P. Launch.

"Whitehall" Boats and Motors

The Whitehall Motor and Boat Co., Whitehall, N. Y., is offering for the 1908 season a number of different styles of motor boats and motors, their most popular type of boat being an 18-footer, fitted with a 3½ H. P. motor, as shown herewith. This boat has a 4 ft. 4 in beam and will carry 8 to 10 persons at a speed of 7 to 8 miles per hour. Besides the Model 8, they make a Model 10, which is similar to Model 8 with the exception of the length and power plant. Model 10 is 20 feet in length and is fitted with a 3¼ single or with a 7 H. P. two-cylinder engine. The cylinders in either case are 3 9-16 in. bore and 4 in. stroke. The motors are all two-cycle, with jump spark ignition. The hulls are best material, sides of cypress, bottoms of white pine, decks and combinings of hard wood. The finish is white, with the decks and combings given two coats of varnish. The chocks, cleats, steering wheel and all fittings are of brass. Model 8 complete with 3½ H. P. motor lists at $150. The motor separate lists at $90. Model 10, 20 feet speed hull, fitted with a 7 H. P. double-cylinder motor, lists at $320. The 7 H. P. motor here shown, complete with reversing gear, lists at $180.



The "Whitehall" 2-Cylinder 7 H. P. Marine Motor.

Mr. C. W. Harris, well-known boat builder, of Pekin, Ill., will erect a new building at a cost of about $10,000. The building will be completed as quickly as possible, in order to take care of the increased business in the motor boat branch of his trade.

Aerocar

FOR 1908

Model "E" Touring Runabout
$1,500

Air Cooled, 20 Horse Power Motor, 104-inch Wheel Base.

Model "D" Light Touring Car
$1,500

4 Cylinder Air Cooled, 20 Horse Power Motor, 104-inch Wheel Base, Four Passenger.

With 4-Cylinder, 25 Horse Power, Water Cooled Motor, $1,850.

Model "F" Touring Car
$2,200

4-Cylinder Water Cooled, 40 Horse Power Motor, 115-inch Wheel Base, Five Passenger.

These three models at these three prices are the greatest Automobile values ever placed upon the market.

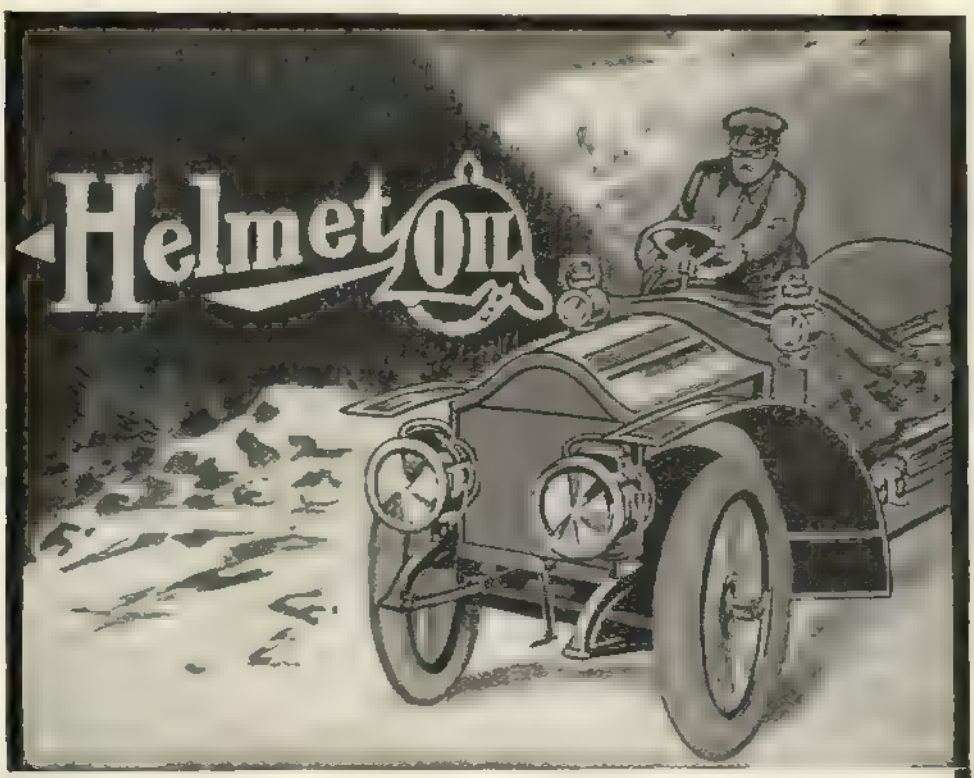
Many who have always thought that they could not afford an automobile, will buy one of these cars at these prices the coming season.

Either 20, 25 or 40 horse power; three, four or five passenger; air or water cooled motors; multiple disc clutches; sliding gear transmissions; shaft drives; and the very best of materials throughout.

Agents who are out for making money next season, will do well to secure our Dealer's Proposition.

Write at once if we are not represented in your territory.

AEROCAR MOTOR CO., Detroit, Mich.



Helmet Oil Ends Your Oil Worries

Helmet Oil gives the same amount of lubrication on a cold day as on a hot day. Temperature does not affect it. You do not have to watch the lubrication of your car when the days change in temperature.

If you use common liquid oil, the bearings require constant watching. If the day is hot, liquid oil becomes thin, flows too readily, the bearings are flooded and the supply is exhausted. On the other hand, if the day is cold, the liquid oil congeals, flows slowly and is very slow acting. Helmet Oil is not affected by heat or cold. It is not a liquid oil. On account of its "body" or density, the temperature of any day does not affect it. Helmet Oil does not contain an atom of pitch, gum or acid. It will give you perfect satisfaction on every bearing in your automobile.

The merits of Helmet Oil can be thoroughly demonstrated on *your* car *free* of expense to you.

Try It Free—Write for Booklet

Send us the name of your dealer and we will have him give you a free sample to try. Put it on the bearing that is giving you the most trouble and you will find that it will give perfect satisfaction.

"Auto Lubrication" is a booklet that we send *free*. It contains facts about lubrication that every automobile owner should know.

C. H. BESLY & CO., 13 S. Clinton St., Chicago, Ill.

AIR COMPRESSORS

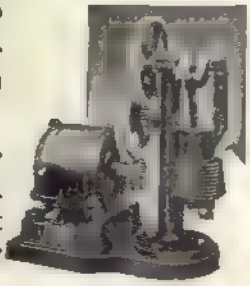
BELTED—MOTOR DRIVEN

Single and Three Cylinder Styles

Just the thing for public or private garage for inflating tires, cleaning cushions, etc.

ANNEALED ENGINE PISTONS AND PISTON RINGS, CONNECTING-RODS, MITRE AND ENGINE GEARS.

We are also prepared to furnish finished die-cast Nickel Babbitt or White Brass Crank Shaft or Connecting Rod Bushings.



Season Contract Work Specially Solicited. **Send Us Your Specifications.**

THE F. W. SPACKE MACHINE CO.

INDIANAPOLIS, IND., U. S. A.

CUT this AD. OUT and SAVE IT

AUTO TIRES

OVERSTOCKED :: BUY NOW

	SHOES	SHOES		SHOES
28 x 2½	$ 5.00	$11.00	34 x 3	$12.00
28 x 3		14.00	34 x 3½	18.00
28 x 3½		14.80	34 x 4	19.00
30 x 2½		7.00	34 x 4½	24.00
30 x 3		14.50	34 x 5	28.00
30 x 3½		16.50	36 x 3	20.00
32 x 3		11.00	36 x 3½	21.00
32 x 3½		16.87	36 x 4	22.00
32 x 4	15.00	20.00	36 x 4½	27.00
32 x 4½		24.00	36 x 5	33.00

These are Clincher Type, special prices on Inner Tubes. Write for prices on any size or style, will surprise you.

A. H. KASNER,

152 CHURCH ST.,
NEW YORK CITY.

One of the most dignified catalogs of motor car supplies has just been issued by the Motor Car Equipment Co., 55 Warren St., New York. This catalogue is enclosed in an attractive buff cover printed in red and black. It contains 96 pages, which are all very clearly illustrated and contain ample descriptions of a large number of accessories. In order that goods may be easily found in this catalog a very extensive index is given in the front of the book and contains about 450 headings. All the leading lines of automobile accessories are listed in this catalog and the Motor Car Equipment Co. calls attention to the fact that anything on the market not illustrated in the catalog can be furnished on request. This company has shown very good judgment in using good white paper on which the cuts and text matter show up very clearly and distinctly, and besides being of practical advantage, this makes a good impression on the reader. Sending out a poor-looking catalog is like sending out a shabby salesman to sell goods, and on the other hand, a bright, attractive-looking catalog makes a good impression, same as a well-dressed, affable salesman makes upon a possible customer. On the back page of the catalog appears a guarantee that all goods must be exactly as represented, and will be exchanged if upon receipt they turn out different from what the customer expected. This catalog is a strong piece of advertising matter and is bound to make a good impression upon the recipient.

Pirelli & Co., 396 Broadway, N. Y. City, have issued a new price list of Pirelli tires, which has been sent out in folder form under date of March 15th.

The Lozier Motor Co., 55th St. and Broadway, N. Y. City, have commenced a publication of a new House Organ, the third in the series of Lozier publications of this character. Their first House Organ was issued by the Lozier Co., when it was manufacturing Cleveland bicycles, and was called "On the Square." The second in the series was the "Propeller," published in the interest of the Marine Department of the Lozier Company, and this third House Organ, called "Lozier Logic," is published in the interest of the automobile business of the Lozier Co. The first number of "Lozier Logic" is a newsy publication of 18 pages and cover. It is in charge of C. A. Emlen, manager of their Publicity Department, and will be published at intervals as circumstances demand.

The Joseph Dixon Crucible Co., of Jersey City, N. J., have just issued two new books on Dixon's Lubricants. One of these relates to Dixon Graphite Lubricants for the transmission gears of automobiles, and the other contains a number of questions and answers regarding automobile lubrication. Both are therefore of interest to automobile users and can be obtained by writing to the Dixon Company.

A booklet recently issued by Breeze Carbureter Co., of Newark, N. J., is not only a good advertisement of Breeze carbureters and fuel strainers, but a comprehensive treatise of the carbureter and fuel question generally, containing as it does a large amount of informative data on this subject. Under the title "Proof of the Pudding," Stewart & [illegible] Mfg. Co., 532 Diversey Bldg., Chicago, Ill., have published a large poster size sheet containing on one side a number of testimonials from users of the Stewart Speedometer and on the other side a number of large illustrations showing the various styles of this device alone and in combination with clocks. Accompanying this poster sheet is another sheet containing suggestions in regard to the purposes to which the Speedometer may be put in keeping track of gasoline consumption, mileage of battery service, life of the car, engine efficiency, etc. An order blank also accompanies these pieces of advertising matter.

A combined folder and mailing card has been sent out by the Supplementary Spiral Spring Co., 4534 Delmar Ave., St. Louis, Mo. The data in this folder is under four heads, namely "We Say," "They Do," "They Say," and "You Say." Under "We Say" the company gives their arguments in favor of the use of the supplementary spiral spring. Under "They Do" is told what the springs accomplish. Under "They Say" is given statements of a number of satisfied users of supplementary spiral springs, and under "You Say" appears a form blank to be used by those who may be induced to investigate the merits of the spring. On the back of the folder a list of records taken from the A. A. A. year-book is printed in full.

The Atwater Kent Spark Generator is very fully described and clearly illustrated in a neat booklet which has lately been issued by the Atwater Kent Mfg. Works, 46 N. Sixth St., Philadelphia. Several of the illustrations are line cuts showing interior and detail views, and in addition to these there is a half-tone illustration of the generator itself, exterior view, and an illustration of the generator on the dash of an Elmore car. The book is very tastefully gotten up and the information it contains is clearly presented, making it an attractive piece of advertising matter.

The Klaxon, a new alarm for use on motor cars, motor boats, etc., is very fully described and illustrated by a 16-page folder, which has been sent out by the manufacturers, Lovell, McConnel Mfg. Co., of Newark, N. J. The feature of this booklet is the use of a number of pen-and-ink sketches illustrating in a characteristic manner the uses to which this alarm may be put. Besides these, several half tone illustrations show the device in different views and a number of line cuts illustrate its constructive features. The text matter is put in the form of a message from Klaxon itself and is written so as to appear as if the alarm was describing itself and explaining its purpose.

A folder recently sent out by Adam Cook's Sons, 313 West St., N. Y. City, contains illustrations of a number of applications of Albany Grease, clearly bringing out the fact that this grease does not drip from the bearing, but stays where it performs the purpose for which it is intended. A letter from the chief engineer testifying merits of Albany grease, and an illustration of a 500 H. P. engine with a hand-made grease cup in which Albany grease is used are features of this folder.

The Touring Bureau of The White Company has just issued the sixth in the series of White Route books. The new issue covers the route from Philadelphia over the National Highway as far west as Springfield, Ohio, and then southward thru the Southern States to Savannah. This book gives definite data on the roads of Kentucky, Tennessee, Alabama and Georgia, and road directions for following the National Highway thru Maryland, Pennsylvania, West Virginia and Ohio. The new route book, besides giving detailed directions for over 1200 miles of road, contains articles descriptive of the route, embellished with numerous illustrations. There is also a fine double-page map of the country traversed. Tourists may obtain copies of the new route book free of charge on application to any of the branches or agencies of The White Company, or to the Touring Bureau of the company, 1402 Broadway, New York City.

The Amoco Oil Can

American Oil Co., Jackson, Mich., maker of the "Amoco" line of oils and greases, is furnishing to automobile users an oil can which will not tip over. It is 8½ in. long, 5½ in. deep and 5½ in. wide, and

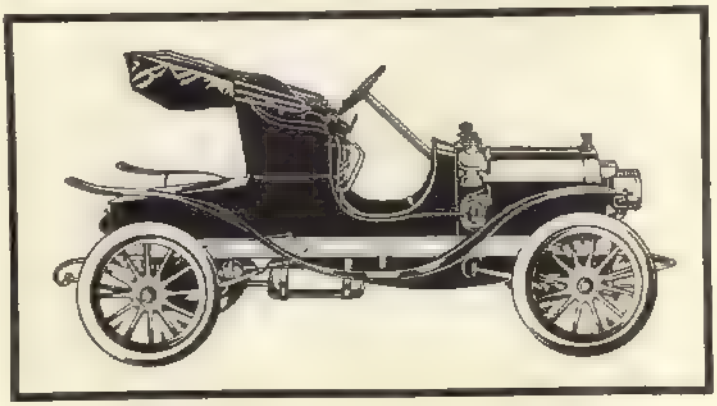
The Amoco Oil Can.

its shape is shown by the accompanying cut. It can be stored away in a corner of the car and is convenient, attractive and durable.

C. H. & W. E. Salade, of Wheeling, W. Va., dealers in automobile and motor boat supplies, desire to receive catalogs and other printed matter from manufacturers of cars, motor boats, accessories and supplies.

The Metallic Specialties Co., of Philadelphia, manufacturers of robe rails, foot rails, tire holders, lamp brackets, cut-out pedals, etc., has moved from 322 North Broad Street to larger quarters at 302 North Broad. Besides making a complete line of the above mentioned goods, this concern is prepared to estimate on special brass work of any kind and solicit inquiries from manufacturers and jobbers thruout the country.

Agents :: Speak Quick!



The Atlas

Famous 20hp. Runabout.
Rumble-Seat 30hp. Runabout.
Luxurious 40hp. Touring Car.

Equipped with the motor-marvel of the age, in units of 2, 3 and 4 cylinders.

These motors embody ***absolutely all*** the successful and desirable features of the best 4, 6, and 8 cylinder automobile engines, with ONLY ONE-TENTH as many moving parts.

All cars equipped with finest aluminum bodies.

Atlas Motor Car Co.,
Springfield, Mass.

HARRY A. KNOX, Pres.

A National Prophecy Fulfilled.

In the fall of 1905, when we brought out the First Stock Six Cylinder Car, made in America

We stated in our advertising

THAT IT WAS "An Innovation in Touring Cars."

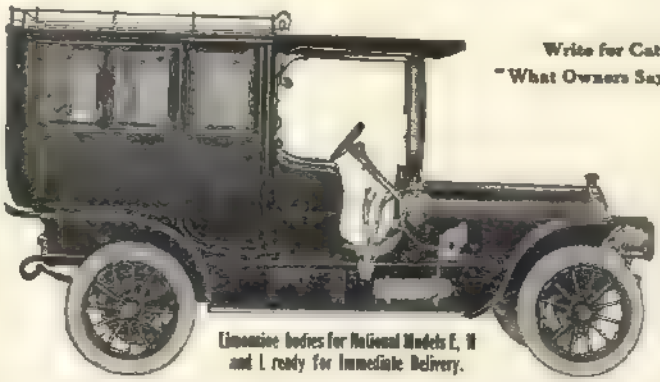
THAT IT WAS "A car very much ahead of the times."

THAT IT WAS "A car which would be extensively copied in the near future."

Note the number of manufacturers who are NOW building six cylinder cars.

THE 1908 NATIONAL LINE

Model T.	Model R.	Model N.
6 Cyl. 75 H. P.	6 Cyl. 50 H. P.	4 Cyl. 50 H. P.
TOURING CAR,	TOURING CAR,	TOURING CAR,
LIMOUSINE.	LIMOUSINE,	LIMOUSINE,
	ROADSTER.	ROADSTER.



Limousine bodies for National Models E, N and L ready for Immediate Delivery.

Write for Catalogue and Booklet "What Owners Say About Their Nationals"

NATIONAL MOTOR VEHICLE CO.

1003 East 22nd St., Indianapolis, Ind.

Member American Motor Car Manufacturers' Association, New York.

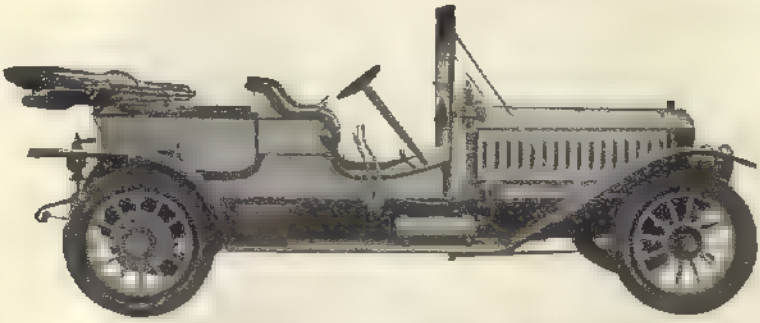
QUALITY LAMPS

Skill in the building, care in selection of material, and practicability as well as beauty in designs have made the Atwood Lamps and Generators the foremost product of their kind in the world. Constant improvements, the most severe tests upon completion, and careful and minute inspection through every process of construction have conserved the reputation for quality so consistently earned during 35 years in the building of lamps.

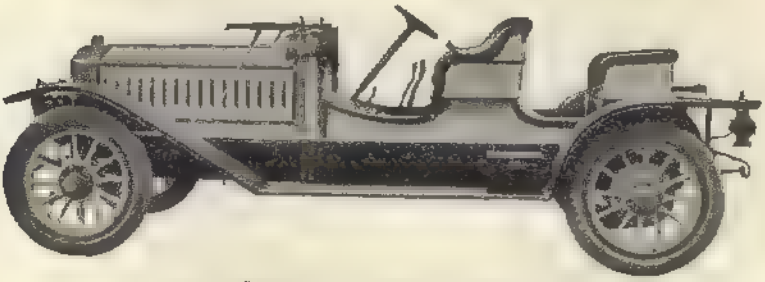
Write for Catalogue

ATWOOD MANUFACTURING CO.
Amesbury, Mass.

1908 Austin Models



6 Cylinder Austin, 90 H. P.



6 Cylinder Austin, 90 H. P.

The 1908 Austin Models are designed to exactly meet my own personal requirements after 6 years of building high grade cars, and to fulfill the ideas of that class of owners who want the "sportiest" kind of a car it is possible to get with *all* the power and speed they can possibly use—a car that is either a touring car or a runabout capable of making a 1000 mile trip any time, and will beat anything on the road.

Our 6 cylinder 90 h. p. model is my idea of such a car and I believe it stands today without an equal in the Automobile world at any price.

Our new combination body as a touring car has an extra folding footboard chauffeur's seat. The tonneau seat can be replaced in 3 minutes by a rumble seat, thus converting the car into a runabout of the very latest design.

The equipment is complete in every respect, and includes both seats, and extension surrey top for the touring car, and single top for the runabout. We also furnish this new combination body on our regular 60 h. p. model in place of 7 passenger touring body. This regular standard body, either with or without detachable limousine top, will be furnished on both 60 and 90 h. p. models.

All Austin cars have the celebrated Austin Motor and are built in our own shops under my personal supervision.

Send for Catalogue and detailed information about our new models.

WALTER S. AUSTIN, Austin Automobile Co.

GRAND RAPIDS, MICH.

Packard Close-Coupled Car

Appreciating the demand for a four-passenger car, the owner of which may wish to drive it himself, with his friends close to him, while the chauffeur, if he be in attendance, is carried in the rear, the Packard Motor Car Company, of Detroit, Mich., has brought out a special close-coupled body. This body, attached to the well-known Packard "Thirty" chassis, is shown in the accompanying illustration.

The Packard "Thirty" runabout is designed as a two-passenger car with a rumble seat for the chauffeur. Every detail of its construction is directly intended to provide comfort for the two people in the regular seats. A runabout chassis is not designed for two extra passengers, and also two small hard rumble seats cannot be replaced by two comfortable seats without absolutely ruining the entire design. The company believe that runabout rear springs capable of carrying four people comfortably over rough roads are not possible for a car primarily designed for two people, because the variable load is all on the one set of rear springs and not distributed between the front and rear springs, as in the case of the touring car.

A logical solution of these design problems is the Packard Company's new close-coupled car. In this new design the passengers are midway between the front and rear axles, so their weight is distributed between the front and rear springs. Consequently, a variation of one or two passengers in the load is not immediately felt, and the car can be used with half or full load, with practically equal comfort. It is a peculiarly safe and capable car for fast, hard driving over rough roads, owing to the distribution of weight.

The rear end of the body provides storage space for bags, touring paraphernalia, or anything else which the owner desires to carry. The Packard Company is now supplying this close-coupled car for $4,300, week in July, at a convenient touring centre, there will be a massing of American motorists and a discussion of the subjects in which they are most interested. The convention will be the first of its kind and was suggested by the Springfield Automobile Club of Springfield, Mass.

or $100 above the price of the standard touring car.

A. A. A. Convention for Buffalo

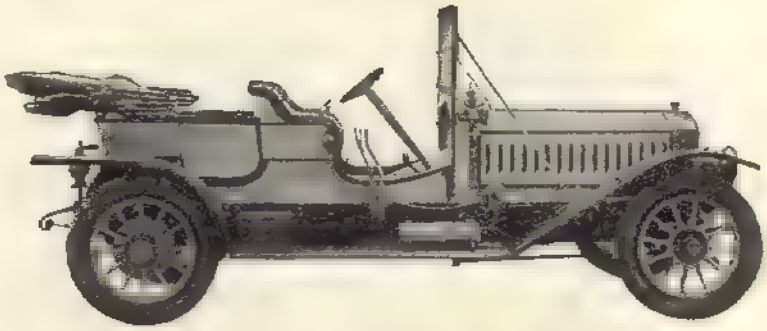
At a meeting of the directors of the American Automobile Association, held at the Association's headquarters, No. 437 Fifth Avenue, New York City, Tuesday, March 3rd, the Board resolved to hold an open convention of the American Automobile Association devoted chiefly to discussion of good roads, legislation and touring at Buffalo on July 6th and 7th, 1908, to which city all of the clubs of the Association will be asked to conduct club tours At this convention the good roads experts of the United States, as well as motorists interested in legislation, will be invited to be present. The Glidden tour will start from Buffalo on July 8th. Thus the first

The new Packard Close-Coupled Car. This rig is designed to combine the qualities of the runabout with the carrying capacity and easy riding qualities of the touring car. The passengers weight is divided between the front and rear springs instead of all the extra weight coming directly on the rear spring as is the case when extra seats are placed on a runabout. The chassis is the regular Packard "Thirty." The rear end provides storage space for bags and touring paraphernalia. Price $4,300.00.

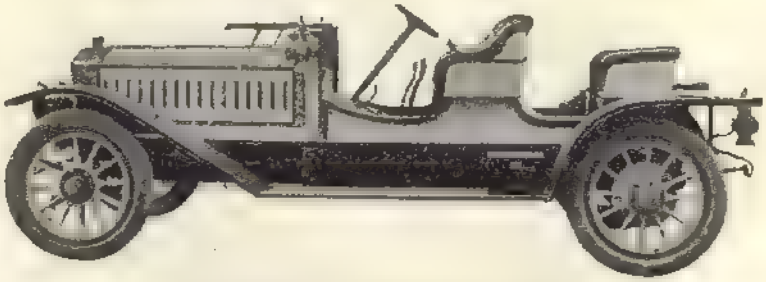
It might not do to say that a completely satisfactory substitute for the pneumatic tire will never be found; but the fact remains that after some twenty years, the pneumatic tire still holds its place, notwithstanding the millions in cash and energy that have been expended to supplant it, or do away with its chief shortcoming—the inevitable puncture.

It wasn't so very long ago that an automobile laid up at the road-side for repairs was a usual thing, and the papers joked often about the difficulties of motoring. Cartoonists illustrated the lowly position of the owner as he laid on his back under the car. To-day it is a rarity indeed to see an automobile stopped or to see anyone tinkering on one. Tire troubles have also decreased, and it is possible to travel long distances without seeing a car stopped for tire repairs.

1908 Austin Models



6 Cylinder Austin, 90 H. P.



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Send for Catalogue and detailed information about our new models.

WALTER S. AUSTIN, Austin Automobile Co.

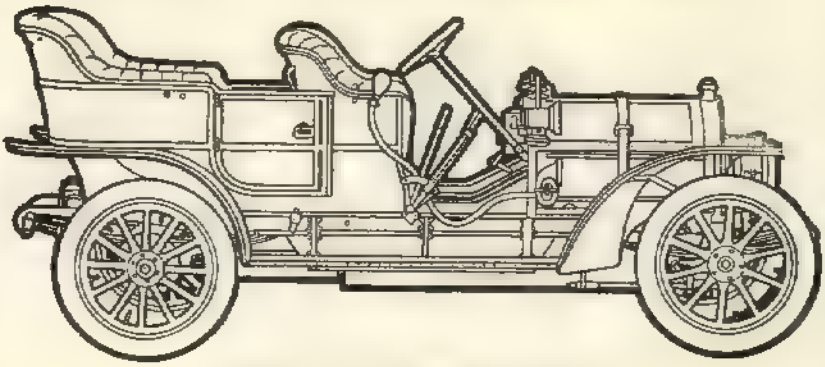
GRAND RAPIDS, MICH.

Thomas

1908

4 Types of Chassis, 19 Types of Bodies

Absolutely the most complete line of ***reliable*** cars with reserve power and the prestige of the Thomas name.



This is the Thomas Detroit
4 Cylinder, 40 H. P.

A marvel of lightness and smoothness. It has dash and style in appearance and action that fascinates the expert. With good, wide, roomy seats for five—plenty of room—plenty of reserve power—finely, luxuriously finished—it is absolutely the most for the money in automobiles to-day.

Because of our great increase in facilities, we propose to extend our trade to territories hitherto neglected, and cordially invite all automobile dealers and users to visit our factories for demonstrations and inspection. Pamphlets and photographs will be sent on request.

E. R. THOMAS MOTOR CO.

Member A. L. A. M.

BUFFALO, N. Y.

The Austin Roadster

Quietest
Speediest

1908

90 H. P. 6-Cylinder Roadster (as a Runabout

FROM 7 TO 90 MILES PER HOUR ON DIRECT DRIVE

Our New Combination Body has both a rear tonneau seat and rumble seat so that the car may be used as either a Touring Car or Roadster of the most refined type.

The Austin Roadster is furnished with the above equipment and with both a single and double extension top This Combination Body may also be had with our regular 60 H P. model in place of the 7-passenger tonneau body.

90 H. P. 6-Cylinder Roadster (as a Touring Car)

OUR 1908 LINE

Model XC-T Six-cylinder 90 H. P. Touring Car.
Model XC R Six-cylinder 90 H P Combination Roadster
Model XC-L Six-cylinder 90 H P. Detachable Top Limousine.
Model LX-T Four-cylinder 60 H. P. Touring Car.
Model LX-R Four-cylinder 60 H. P Combination Roadster.
Model LX-L Four-cylinder 60 H P Detachable Top Limousine.

MAY WE SEND YOU OUR CATALOGUE?

AUSTIN AUTOMOBILE COMPANY, Grand Rapids, Michigan

We have said it before, we say it again because it will bear repeating.

Just watch the Studebaker. The car that doesn't make excuses. The car that DOES things.

P. S.--This is a Studebaker Year.

Some cars make good sometimes. The STUDEBAKER makes good every time.

Studebaker

AUTOMOBILE CO.

Main Factory, South Bend, Indiana.
General Office, Cleveland, Ohio.

The Panther of the Automobile World

BECAUSE of the sinuous grace of its lines, the soft, deep purr of the Renault style motor, the smooth, stealthy pick-up when clutching; the noiseless engagement of the gears, and that ever present suggestion of readiness and reserve force—all attributes of the graceful panther and likewise of the sturdy

MIDLAND

The Midland has "taken on" with buyers who think and wish to be shown, because it is **RIGHT** all through

No experiments about it—everything tried and proved in years of hard usage.

Renault Engine—made in America from the patterns of the motor used in this famous $10,000 French car

Timken front and rear axles, transmission, Warner, with Timken roller bearings, Hartford Universal Joints, everything staple all through, 34 x 4 quick detachable tires.

Standard "STERLING," in a word RIGHT.

4-cyl., 30 h.p. $2250

THE MIDLAND "STERLING" MOLINE, ILL., U.S.A.

MIDLAND MOTOR CO.

MOLINE, ILLINOIS

TO DEALERS

We can arrange with two or three more dealers before exhausting our output. If you could sell a car with "Renault" engine at $2,250, write us for details. It's a fact that one Midland car in a community has always sold the dealer's entire allotment without solicitation.

Matheson

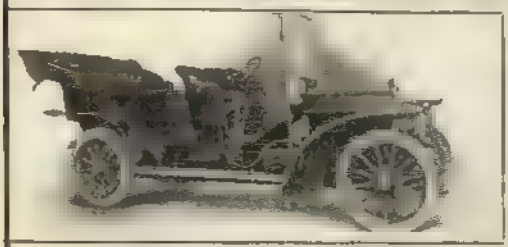
ONE YEAR GUARANTY

Write for complete catalog and book of customers' letters. How well we have succeeded in building the best motor car in all the world is told by our customers themselves, who, as a class, are the most prominent men of affairs in this country.

DEALERS

NEW YORK CITY A. C. Southworth Co., 1733 Broadway
PHILADELPHIA, PA.—Noblit & Fassitt, cor. Broad & Cherry
PITTSBURG, PA.—E. T. Schellenberger 41 Leader Building
BOSTON, MASS.—Matheson Co. of Boston, 1230 Massachusetts Ave., Cambridge, Mass.
BALTIMORE, MD.—Matheson Co. of Maryland, 1002 Morton Street
SAN FRANCISCO, CAL.—Matheson Co. of California, 442 Golden Gate Avenue
ST. LOUIS, MO.—South Side Auto Co., 2339 S. Grand Avenue
ALBANY, N. Y.—Albany Garage Co., 28-30 Howard St.
BINGHAMTON, N. Y.—H. D. Clinton Auto Co.
FORT WAYNE, IND.—Straus Bros. & Co.
MIDDLETOWN, N. Y.—Empire Garage Co.
PORTLAND, ORE.—H. L. Keats Auto Co., 80-82 Seventh Street
ROCHESTER, N. Y.—Rochester Automobile Co.
WILLIAMSPORT, PA.—Rothfuss-Howard Iron Wks
LONG BRANCH, N. J.—Long Branch Auto Co.
CHICAGO, ILL.—Bird-Sykes Co., 1470 Michigan Ave.

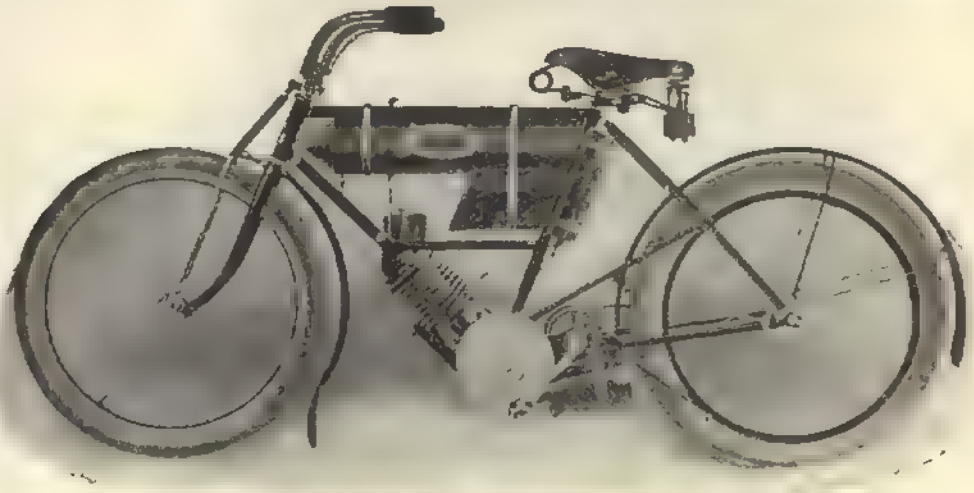
Dealers are wanted in all localities where we are not now represented.



MEMBER SELDEN ASSOCIATION

MATHESON MOTOR CAR CO., Makers
WILKES-BARRE, PA.

THE AUTO-BI



A Successful Motor Cycle

Should have plenty of power to climb hills easily.

Should have a practical (tried and tested by the public) method of transmitting power from engine to rear wheel.

Should have a grip control which will not tire the wrists by hanging on to a loose grip, and yet be under the instant control of the rider.

Should be equipped with an auxiliary exhaust port to keep motor cool, and add to power and speed, by getting rid of exhaust gases quickly.

Should have motor hung as near the center of machine as possible and very low to make machine steer easily and so the rider does not have to *straddle a hot motor*. Motor should be placed as near horizontal as possible so that explosive force and vibration is exerted on a line with momentum of machine and rider, thus doing away with vibration.

Motor should have solid forged crank shaft *hardened and ground to size* (all automobiles use one piece shafts, why?) inside of motor should be easily accessible without removing motor from frame. Cases split horizontally, as in the Auto-Bi, allow this.

Truss spring cushion forks are indispensable for safety and comfort.

It should be equipped with flusher valve for easy starting at all times.

It should have ample tank capacity for touring purposes.

It should present a graceful pleasing appearance with each part in harmony and built for the particular purpose to which it is put.

A SUCCESSFUL AGENT

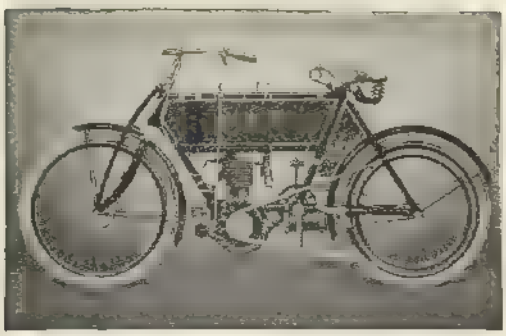
Will insist on securing a motorcycle which includes each of the above features. This will assure him of a machine which will be easily sold, and will stay sold, and a motorcycle which he can recommend and build up a business with.

A SATISFIED CUSTOMER

The buyer of the 1908 Auto-Bi will get a machine that is guaranteed for the year. It is safe, comfortable, powerful, speedy, can be easily controlled by the novice, and is a strictly high grade machine, with many features originated by us and found only on the Auto-Bi.

CATALOGUE AND TERMS ON REQUEST

The Auto-Bi Company 1453 Niagara St. Buffalo, N. Y.



It's the Machine—

the excellent qualities of which enable its riders to secure success in open competitions all over the world.

Mr. J. D. Hamilton, the well-known motor cyclist, who successfully competed in the British A.C.C. Trials with an N. S. U., writes:

"In the last competition I found it (the two-speed gear) invaluable, and it was only by letting in the second speed that I managed to negotiate the horses and dogs at the foot of Birdlip, and get to the top without dismounting. The machine and two-speed gear I used are the same as I took over the Juras and Alps into Italy, and this, coupled with the fact that I did not lose a single mark for reliability in the last severe trials, is sufficient indication of their excellence."

It's the Machine

which gives such unqualified satisfaction to its owners by reason of the fact that it "never fails" at the severest test or on the tour.

We will send you full particulars with pleasure.

N. S. U. Motor Co.
206 W. 76th st., New York.

N. S. U.

The "Rough Rider" Grip

Hartford Rubber Wks. Co., Hartford, Conn., are furnishing the motorcycle trade a new motorcycle handle-bar grip called the "Rough Rider." It is made on the same lines as the old bicycle handle bar grip, but is elongated so that it extends a considerable distance beyond the handle a pair. It is said to have met with the hearty approval of motorcycle riders thruout the country and is already widely used. proper, thus relieving the rider's wrists of considerable of the jar and jolt of the ordinary short handle. It is made of a fine quality of rubber and retails for $2.00

The "Rough Rider" Motorcycle Grip.

The "Peerless—V" Belt

Gibs Belt Company, 1459-63 Michigan avenue, Chicago, Ill., has placed on the market a new type of belt for motor cycles, air compressors, etc. It consists of a V-shaped chain encased from below by a continuous strip of rawhide and from above by a sectional strip of leather, each section of which is fastened to the chain and to the continuous rawhide strip by means of a bolt that passes thru them. A combination of the advantages of both chain and belt drives is claimed for this construction for the chain prevents stretching while at the same time not detracting from the flexibility of the drive. This belt is run slack and will run on very short centers.

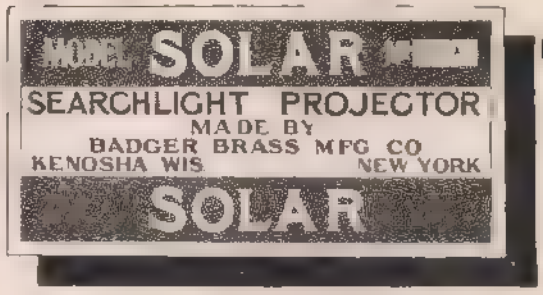
In Riverside, California, an ordinance has been put in effect forbidding the use of the cut-out, under penalty of a fine not exceeding $200. The same law also set a speed of 4 miles an hour in the business district of the city, 10 miles in the residential section, and 15 miles elsewhere

$40 MOTOR CYCLE

We have the largest line of New and Used Motor Cycles, Parts and Supplies in the country at the lowest prices. Every [illegible] guaranteed. We are the largest and only exclusive Motor Cycle house in the world. [illegible] for [illegible] catalog [illegible] pages [illegible] Motors [illegible]

Gas bags for Air Ships. Motors for hand-way [illegible] pedes.

Harry R. Geer Co., 856 McLaran Ave., St. Louis.



Exclusive Features of Solar Lamps

THE INTERNAL METHOD OF SCREW ASSEMBLING

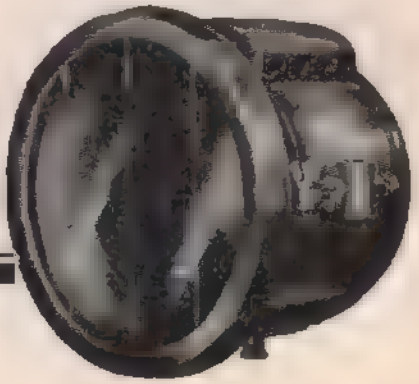
All Solar Headlights when assembled are riveted by internal screws. This *exclusive* feature produces a perfectly smooth exterior surface, permitting ease of cleaning. This is a very important feature for the owner to consider when purchasing a motor lamp.

This important detail and all others explained fully in our new 1908 catalog. Write for copy.

Badger Brass Manufacturing Company

TWO FACTORIES:

Kenosha, Wis. 434-11th Ave., New York



BAKER ELECTRICS

The success of an automobile depends more upon the continued satisfaction afforded its users than upon the performance of special stunts.

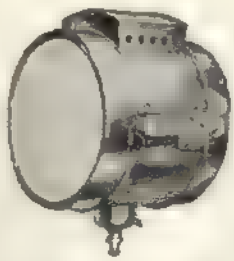
BAKER ELECTRICS are built for service and that they furnish it in full measure is demonstrated by the fact that Baker owners are invariably Baker enthusiasts.

BAKER ELECTRICS perform some stunts too. On May 23rd, a Baker Victoria which had been in constant use for over four months was run over Cleveland streets and boulevards, hilly and level, rough and smooth, paved and dirt roads, a distance of 101.6 miles *on one charge of the battery.*

A Baker, entered in the electric class at the Cleveland Hill Climb on June 15th, had no competitors, but to show what it could do, was sent up the hill in 1:41, beating the time of fifteen high-powered gasoline cars.

Whether used for daily service or as a car with which to perform unusual feats, no electric in the market will surpass the Baker at any point.

The
Baker Motor Vehicle Co.
18-80th Street, N. W.
CLEVELAND, OHIO



Ready for 1908

Our New Bicycle Sundry Catalogue No. 40 is ready

Our Automobile Supply Catalogue, No. 39, will be ready soon. We want every dealer to write us for a copy. Free to those who enclose their business card.

AUTOMOBILE ACCESSORIES

The Automobile supply business has come to stay and the volume of this trade is enormous The cheaper the automobile the more supplies are wanted. There is room for more dealers, and sporting goods, bicycle and hardware merchants should put in a conservative stock of these goods, and share in the profit others are making

LET US SUPPLY YOU

We have been making and marketing Automobile Accessories for six years. We know what sells and stays sold and we want you to write us to "show you." We will sell you right goods at right prices and help you build up your business.

Our new catalog No 39 will help us to get acquainted

BICYCLES ARE SELLING

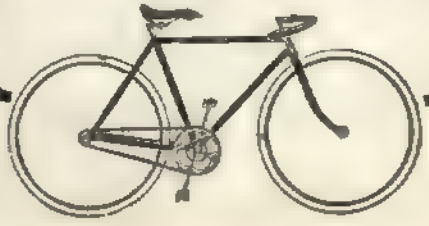
Don't overlook the fact that the bicycle and motorcycle business increased in 1907 and there is every indication of a big demand in 1908. We carry a most complete stock and also by far, the largest trade in this line in the East We are prepared to take care of your requirements and are offering special inducements for early orders Write for our catalog No 40—pocket edition

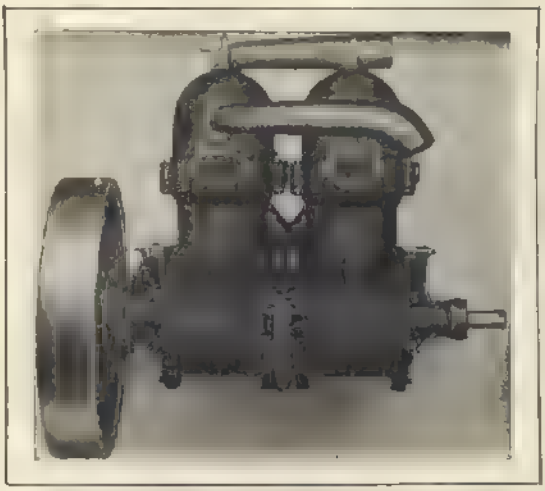
HUDSON BICYCLES

We are wholesale distributers for "Hudson" D. & J Bicycles for all the Middle Atlantic States Agents wanted in unoccupied territory

N. Y. Sporting Goods Co.

17 Warren St. New York





YOU *SELL* WHEN YOU CAN SHOW AN ENGINE LIKE THIS.

"ATLAS" TWO-CYCLE PERFECTED

AGENTS

Here's 22 H. P. in an engine of **FIVE MOVING PARTS.** The handwriting is on the wall. **READ IT:** "Two Cycle is **HERE** to **STAY.**" We have **FIVE SPLENDID AUTOMOBILES.**

Atlas Motor Car Co., Springfield, Mass.

HARRY A. KNOX, President

The Dignified Baker Landaulet

is always in good form for any occasion. The rear half of top and quarter can be thrown back, immediately converting it to an elegant open carriage. It is practical for any kind of weather and is ready for instant service.

Baker Electric Vehicles

give more speed and greater mileage on least recharging than any other electric made.

Handsome in design, elegant in all their appointments, perfect in every detail and absolutely dependable, Baker Electrics have demonstrated their superiority beyond challenge.

LET US SEND YOU
our 1908 catalogue that illustrates and describes the complete line of Baker Electric Coupes, Broughams, Victorias, Landaulets, Surreys, Runabouts, etc.

The Baker Motor Vehicle Co.
35 W. 80th St., Cleveland, Ohio

Agencies in the Principal Cities

Magneto

on

Thomas Car

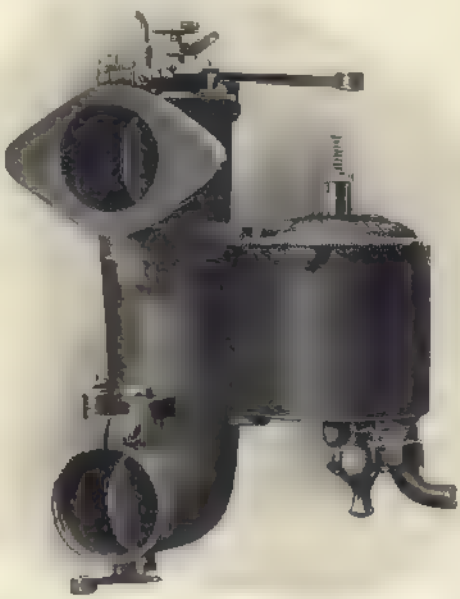
leading in the race from New York to Paris

The remarkable performance of the Bosch Magneto on America's Representative is beyond a parallel. The Bosch Ignition System accomplished its work in such a reliable manner that the drivers of the car have not found it necessary to touch or repair the Magneto since leaving New York. Equip your car with the most reliable ignition system in the world.

BOSCH MAGNETO COMPANY
160 West 56th Street
NEW YORK

IT DOES NOT TAKE TEN YEARS

to build a mechanically correct carburetor. We proved that to thousands who have been seeking relief from poorly constructed Carburetors.



The BUFFALO CARBURETOR

is as nearly perfect as modern mechanical skill can make it. It is used by the manufacturers of Autos WHO KNOW as regular equipment.

BUFFALO CARBURETOR CO.

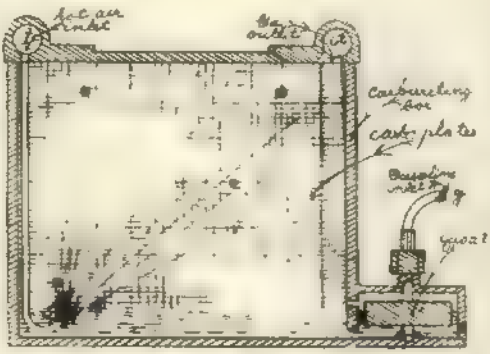
887-889 Main Street, Buffalo, N. Y.

NATIONAL SALES CORPORATION, Factory Sales Managers, 296 Broadway, New York City.

The Weiwoda Triple-Action Carburetor

The Weiwoda triple-action carburetor is the product of Mathias Weiwoda & Co., 1660-1668 Bushwick Ave., Brooklyn, N. Y., and employs the principle of the old style wick type carburetor. Among the advantages claimed for this carburetor is the fact that it is impossible for it to get out of order, as no valves or spraying devices are used in its construction; also that it will work on a lower grade of gasoline than is now possible. It is also claimed to be economical of fuel

In this device gas is formed by the passing of hot air thru a series of plates covered with a capillary acting fabric saturated with gasoline. The plates are enclosed in a rectangular metallic box, which is fitted with two openings, one for admitting hot air from a hot air jacket around the exhaust pipe, and the other for discharging the gas to the engine.



Sectional view of the Weiwoda Triple Action Carburetor

The hot air enters the carburetor at (1), takes its way thru the spray tubes and, on leaving the same, it is carburated by passing upward thru the layer of fuel and also thru the spray of gasoline which it takes up by the velocity given it by the suction stroke of the engine piston.

The gasoline spray is thrown all over the fabric walls so that they are saturated to their utmost capacity when the air is passing between them.

A constant level of gasoline is kept in the tank by means of a small float. The manufacturers state that this carburetor consumes half a pint of gasoline per horsepower per hour. The throttle valve was especially designed for use on this carburetor and is similar to a three-way cock, one opening of which has a check valve for the carburetor, one connects to the intake pipe of the engine, while the third is regulated by an air slide valve. An automatic auxiliary air valve is contained in the throttle valve itself.

The carburetor is made in three sizes, as follows: No. 3, for 3-5 H. P. single cylinder or 8 H. P. multiple cylinder engines, $15.00; No. 5, 6-10 H P. single cylinder or 15 H. P. multiple cylinder engines, $20 00, and No. 7, 12-20 H. P. single cylinder, or 30 H. P. multiple cylinder engines, $30 00. No. 3 is 11 in. long, 6 in. wide and 7¼ in. high; No. 5, 12 in. x 6 in. x 8¼ in., and No. 7, 15 in. x 6 in. x 8¼ in.

Stark's "Alumaloyd Sheets

The Stark Alumaloyd Rolling Mill Co., Canton, Ohio, is furnishing to the automobile trade "Alumaloyd" sheets designed especially for bodies, dashes, guards, bonnets, battery boxes, drip pans, mufflers, etc., and recommended for their durability and their non-rusting quality. These sheets are made from a metal of special composition coated with an aluminum alloyed metal by a method said to result in the absorption of the aluminum alloy, not a surface coating.

These "Alumaloyd" sheets can be stampt, drawn, prest, double seamed or soldered, and one of the chief claims of superiority made by the manufacturer is that as they will not rust, the matter of finishing a body or other part made from them is not only greatly simplified but is a much cheaper process than is usual. The maker of these sheets claims that an "Alumaloyd" body can be finished by the application of a primer, one color-coat, a rubbing and a finishing varnish, the original surface of the sheets being equal to a pumice-stoned surface, so that the sandpapering, rough stuff filling, putty-filling, pumice stoning and the application of several color and rub coats are all eliminated.

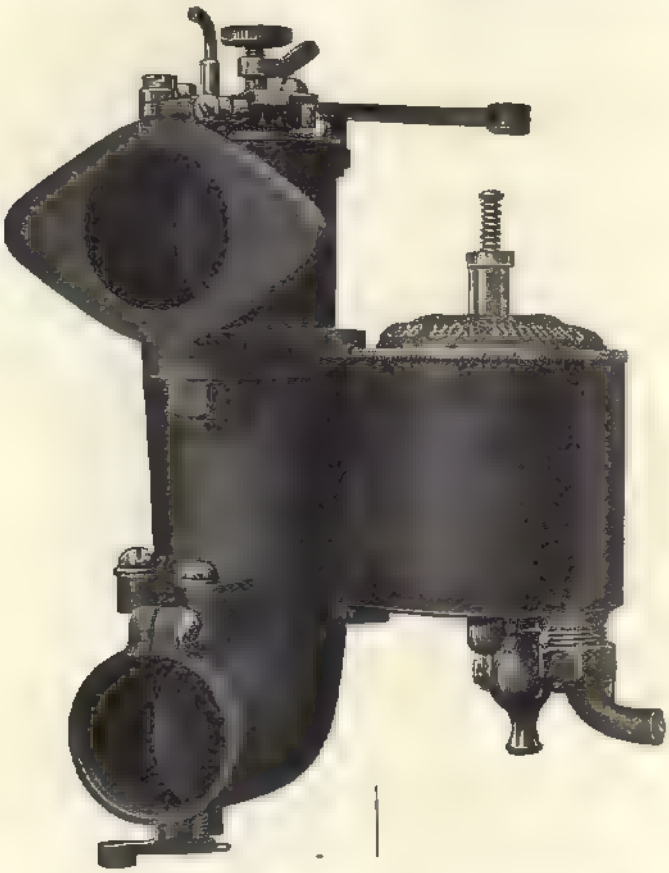
For guards and bonnets the saving is similar to that effected in bodies, on account of the absence of rust around rivets, stays and stiffeners.

These sheets are packed in cases of 175 lbs. each and can be furnished in all standard sizes and gages.

Charles F. Sweet, of Hartford, Conn., manufactures a complete line of automobile lubricants, soap, metal, polish, etc., all of which are distributed by Empire Distributing Co , 200-204 West 71st street, New York City, to whom all inquiries should be addrest. The "Sweet" line includes the "Mercedes" automobile oils, light, medium, heavy and special, for all cars, put up in 1, 5 and 10-gallon cans, barrels and half barrels; Non-Fluid greases for transmission lubrication, etc., in four consistencies, supplied in 2, 5 and 10-pound pails; Climax cup grease, for lubrication of bearings, gears, etc., in four consistencies, in 2, 5 and 10-pound pails; oil soap, guaranteed free from alkali or any ingredient that would injure the surface of automobiles, in 5, 25 and 50-pound pails, barrels and half barrels; Magic metal polish, put up in pints, quarts and gallons, with white, black and red polishing powders

THE BUFFALO CARBURETOR

The Best of All the Carburetors



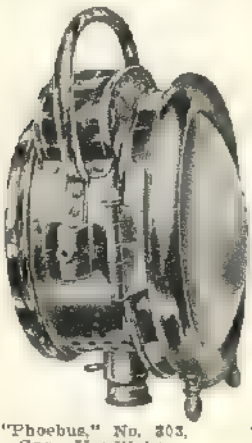
It saves gasoline; therefore money. It is durable, easily adjusted, and gives the maximum of horse-power per gallon of fuel.

BUFFALO CARBURETOR COMPANY
887-889 MAIN STREET BUFFALO, N. Y.

The National Sales Corporation
Factory Sales Managers
296 Broadway New York

"Phoebus" 1908 Lamps and "Atlas" Tire Holders

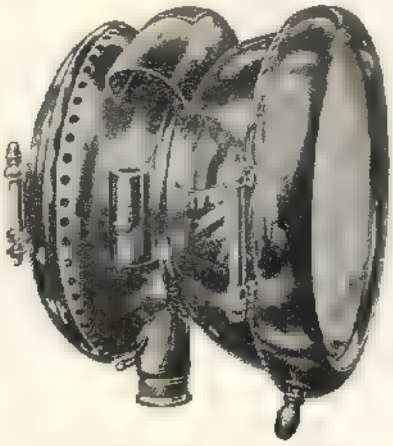
In larger quarters, at Sixty-seventh street and West End avenue, New York City, Manhattan Screw & Stamping Works are this year in a position to handle a much greater amount of business, and for this reason have also increased the number of styles of lamps offered and added some other specialties to their line.



"Phoebus," No. 303, Gas Headlight.

"Phoebus," No. 556, Round Tail Light.

Their lamps are trade-marked "Phoebus," and several of the 1908 styles are here illustrated. No 303 is the leader of the "Phoebus" line. It is called the "light magnifier," and is fitted with a powerful, optically ground 8-inch condensing lens, which not only magnifies the intensity of the light, but projects the rays a long distance ahead, and an efficient, high grade



"Phoebus," No 750, Projector.

reflector is fitted. A feature of the lamp is its compactness, its depth being only 6 inches. The front is 9 inches in diameter and the body 7½ inches. Heavy gage brass is in the body, and the doors and props are brass castings. Between the reflector and the front is placed a lining of gun metal and brass. Price of this lamp is $25 each, list.

Another especially attractive headlight included in the 1908 Phoebus line is the No. 750 "Headlight Projector," which is furnished in two styles, one with and one without back door. Like No. 303, heavy gage brass and brass castings are used in its construction. Either parabolens or ground mangin mirror reflector is used. Dimensions are 10½ inches diameter of front, 8½ inches diameter of back, and 11 inches deep. List price is $15 with closed back, and $16 50 with door in back.

"Phoebus," Square Side Oil Lamp, No. 554.

In accordance with the trend of fashion this company offers an attractive square oil side lamp. This is listed as Style No. 554, is 14 inches high, and the sides are 5 inches square. The body is of brass or

"Atlas," No. 1001, Tire Holder Set.

gun metal, as desired, and the reflector is silver plated. The side glass is crystal, green or red, as wanted. Price is $8 25 each, list.

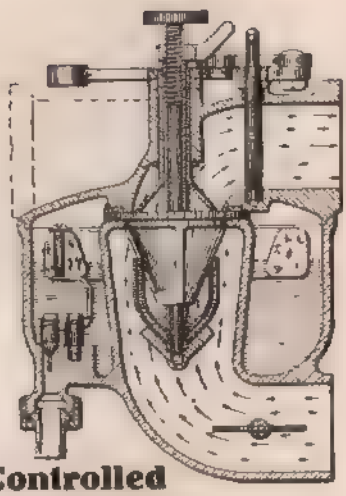
A new tail lamp is also included in the 1908 line, and is catalogued as No. 556. Its dimensions are 9 inches high, 5 inches across front, and 4½ inches deep. It has

A Sectional View

Showing the Working
Arrangement of the

BUFFALO CARBURETOR

is so Convincing of its Simplicity that an Order Always Follows its Inspection. Let Us Send You One.

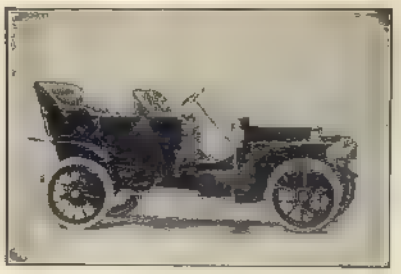


The Only Mechanically Controlled Carburetor on the Market

The Buffalo Carburetor Co.

887-889 MAIN ST., BUFFALO, NEW YORK

National Sales Corporation, Factory Sales Managers, 296 Broadway, N. Y. City



Model "G" Touring Car, $2000.00
25 H. P. Four Cylinder

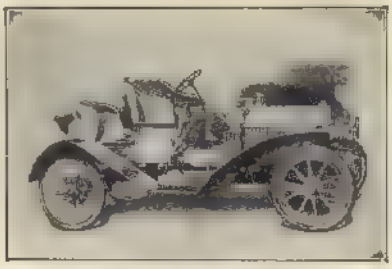
No Matter What Price You Pay

for a motor car, even though it be $5,000 or more, all you can get is, speed as fast as the road permits, power to take the hills and smooth, easy-riding qualities. You get all these desirable features in the

"MODEL G"

Cadillac

$2000



Model "G" Runabout, $2000.00
25 H. P. Four Cylinder

What's more, you get dependability and endurance to the limit of mechanical possibilities at a far less outlay for operation and maintenance than is possible with the big "road locomotives."

CADILLAC MOTOR CAR CO. DETROIT MICH.

Member Association Licensed Automobile Manufacturers

THE GENUINE COES will not only protect you against unnecessary labor, but against tearing the corners off nuts, slipping of wrenches, and other evils common to ordinary kinds, but unknown to the COES.

It is the strongest and best wrench on the market to-day, and will give you a lifetime of good service.

For Real Economy Get a CADILLAC

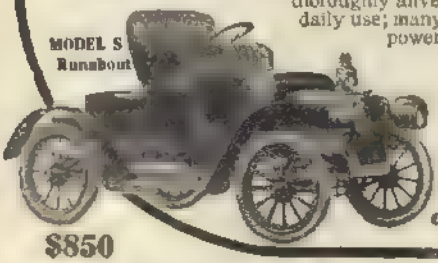
Repair Cost, 50 Cents a Week—Over 18 Miles per Gallon of Gasoline

Actual figures are the strongest argument for economy. Here they are—averages obtained from the *sworn* reports of a large number of single cylinder Cadillac owners, taken at random from all over the United States, covering all imaginable road conditions—mountains, hills, sand, snow, mud. The story they tells is of vital interest to every prospective purchaser. Read it in

"The Truth About the Automobile and What It Costs to Maintain One"

sent free on request for Booklet No. 8.

These reports by disinterested people conclusively *prove* Cadillac economy. The cars themselves prove their service and durability. You see these sturdy, rugged little machines everywhere—always thoroughly alive to any test or requirement—*always going*. There are 16,000 in daily use; many of them are in their sixth season, yet they are just as smooth, powerful and reliable as ever, with never even a suggestion of failing.



In fact, we have yet to hear of the first one put aside because unfit for further use. This is *real* automobile service—the Cadillac kind.

Capable of thirty miles an hour; offers the fullest complement of that pleasure, convenience and recreation which only a car like the Cadillac can afford. Described in Catalog No. 6

Prices include gas dash oil lamps, tail lamp and horn

CADILLAC MOTOR CAR CO., Detroit, Mich.

PALMER SINGER

All Cars Sold by Us are Licensed under Selden Patent and Guaranteed for One Year

PALMER-SINGER TOWN AND COUNTRY CAR, 28-30 H. P., $3,000

Palmer—Singer Four Forty, Seven Passenger, 40 H. P. Touring Car, $4,000

Palmer—Singer Six - Fifty, 6 Cylinder, 50 H. P., $2,450

Palmer—Singer Four - Thirty, "The Skimabout," 4 Cylinder 30 H. P. $1,950.

Palmer—Singer Six Sixty, 6 Cylinder 60 H. P. $2,850

You can't use the $6,000 imported town cars for touring—too heavy—not enough power. The Palmer-Singer Town and Country Car—open or closed, which and whenever you like—has ample power for any roads, any hills—and is besides the BEST town car money can buy.

Sole Distributors of the SIMPLEX

PALMER & SINGER MANUFACTURING COMPANY
1620-22-24 Broadway, NEW YORK 1321 Michigan Ave., CHICAGO

Metropolitan Distributors of the SELDEN

National
MOTOR CARS
"The All Ball-Bearing Cars"

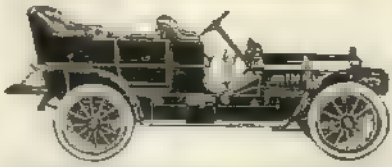
The 1908 Line consists of

Two 4-Cylinder and Two 6-Cylinder Models

In Touring Cars, Limousines and Roadsters

each equipped with

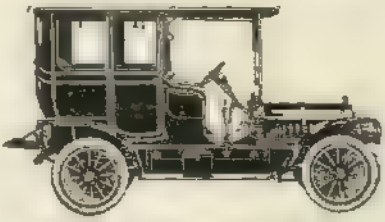
National Ball-Bearing Motors



The entire line embodies the tried and proven NATIONAL type of construction, refined and perfected in all details to the highest possible degree.

National Model K, 4-cyl.,	4½x5,	$3500
National Model N, 4-cyl.,	5x5,	3700
National Model R, 6-cyl.,	4½x4¾,	4200
National Model T, 6-cyl.,	5x5	5000

Each Machine Carries 7 Passengers Comfortably



Write for Descriptive Matter

National Motor Vehicle Co.

1003 East 22d Street

Indianapolis, Ind.

Apply this TEST to the STEVENS-DURYEA

Here's a simple quality test you can make for yourself prior to purchasing a motor car. Make a visit to the second-hand dealers and consult the "Automobiles for Sale" columns in the newspapers and Automobile Journals. It is obvious that the cars which are the most difficult to secure and depreciate the least in value are the cars of quality.

It is difficult to find Stevens-Duryea cars in the second-hand market. They are not built on the change-models-every-year plan—they are not out-of-date in a season. Moreover the Stevens-Duryea Unit Power Plant and Three Point Support make possible a car of wonderful simplicity and durability. Therefore the small price-depreciation in the Stevens-Duryea when you *do* find one.

Apply this test for yourself. Measure the Stevens Duryea with any other car on this basis. The second-hand market is a barometer of automobile quality. Every car then stands on its merits alone.

Stevens - Duryea Co.

Chicopee Falls, Mass.

Members A. L. A. M.

CAMERON

3 Speeds Forward. Direct Drive on every Speed. 45 Miles per Hour, and a Wonderful Hill Climber.

Model 9—Four-Cylinder, 16-20 H. P., $1100

WITH our system of transmission (direct on all speeds) we apply to the rear wheels a greater proportion of the power developed by the motor, than any car built. Combining this with our light-weight, elastic spring suspension and large wheels, gives us the smoothest running, most economical 4-passenger car on tires, in the world.

Our air-cooled motor is the result of five years' development, and is perfect in every detail. This car will *average* twenty-five miles to a gallon of gasoline.

We build three other models beside the above, all four-cylinder, and all equipped with our patented transmission.

Model 6—Runabout, $850 **Model 7—Runabout, $935**
Model 8—Roadster (2-passenger), $1050

Write for Catalogue

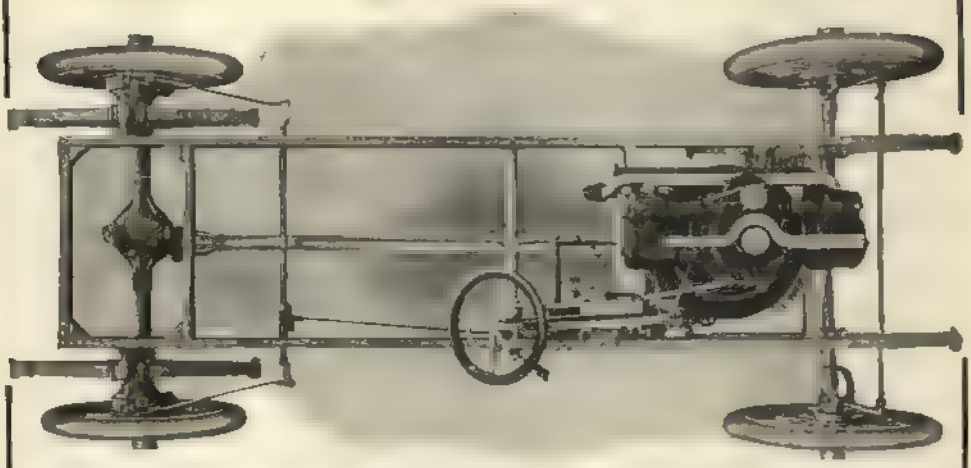
Cameron Car Company

WORKS:
Brockton, Mass.
Beverly, Mass.

GENERAL OFFICES:
BEVERLY, MASS.

The Real Sensation of the Boston Show was the

NEW BLOMSTROM "Gyroscope" Automobile



Nothing before has ever been shown which appealed so quickly to the intelligent buyer. The power and transmission plant is a revelation. The engine is of the two-cylinder opposed type, set lengthwise underneath the hood, thus guaranteeing freedom from vibration. The crank shaft is vertical, with the fly-wheel fixed at the lower end. The friction wheel is placed in the center under the fly-wheel with bevel gear to divided rear axles, thus giving a symmetrical friction drive. The vertical placing of the crank-shaft eliminates fly-wheel load which in a horizontal crank-shaft is carried continually on the crank-shaft journals.

The control of the new BLOMSTROM is extremely simple and convenient. The car is exceedingly well made and finely finished in every respect. It has been pronounced and deservedly so, the **sensation of the year** and a **real winner.**

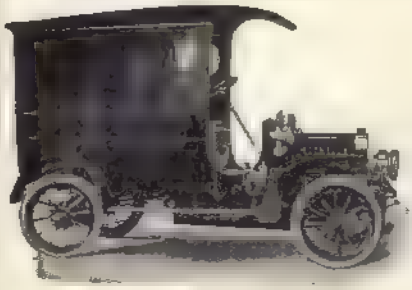
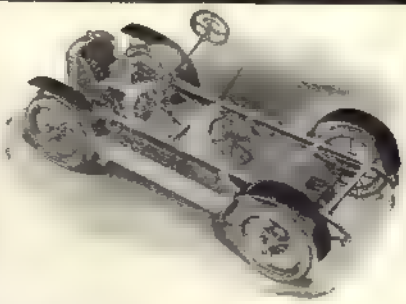
Made in Two Models:

Runabout - - $1250
Touring Car - - 1350

Write for complete description and details.

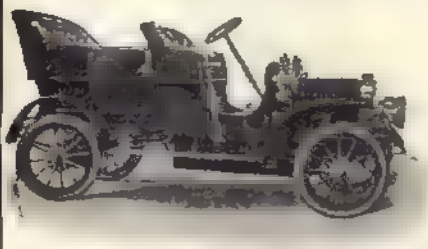
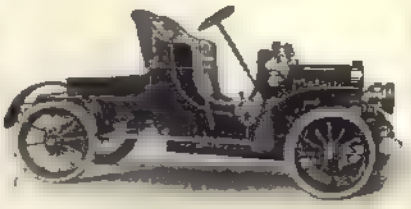
BLOMSTROM MFG. CO., Detroit, Mich.

AGENTS—Boston, Morgan H. Kent, 889 Boylston St.; Denver, Denver Omnibus & Cab Co.; Minneapolis, East Side Auto Co.; Oakland, Keystone Motor Co.; Grand Rapids, J. A. Krause; Victoria B. C., Victoria Garage Co.

CARTERCAR

CARTERCAR

NO GEARS TO STRIP—NO CLUTCH TO SLIP

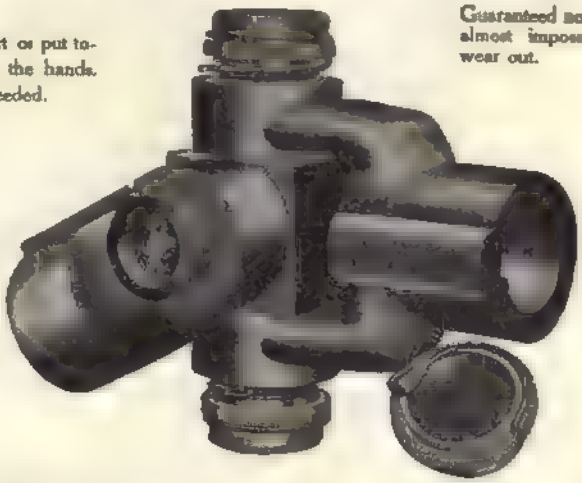
Motorcar Co. Detroit, Mich.

BLOOD BROS. Universal Joints

Designed for Automobiles and Motor Boats

Taken apart or put together with the hands. No tools needed.

Guaranteed not to break and almost impossible to ever wear out.



Absolutely dust proof.

Perfectly lubricated.

Used as a regular equipment on a large proportion of the shaft drive Automobiles.

BLOOD BROS. MACHINE CO. MFRS., - - - KALAMAZOO, MICH.

Manufacturers:

DO YOU WANT TO SAVE

on your transmission and engine parts, gear blanks, etc., without sacrificing quality?

Let us make these parts for you better, quicker and cheaper from large diameter bar steel than from forgings.

WE HAVE SPECIAL EQUIPMENT

We can also machine your Castings and Forgings and are in position to take care of orders.

LET US DO YOUR MACHINE WORK

Ashley Machine Works

714 UNIVERSITY AVE.

ROCHESTER, N. Y.

BUCKEYE JACKS ARE THE BEST JACKS

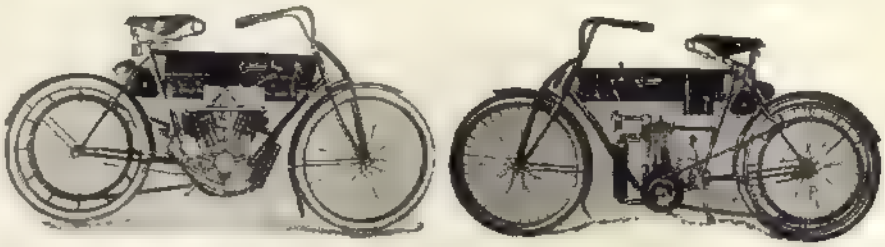
Our 1908 MODELS both Single and Double Acting are provided with a REVERSING LEVER making them the most convenient Jacks on the market to operate. More American Automobiles

are equipped with BUCKEYE Jacks than any other. Positively the only Jacks on the market with High Carbon Crucible Steel Drop Forged Racks and Pawls.

MADE ONLY BY

THE BUCKEYE JACK MFG. CO.

LOUISVILLE, OHIO



THE NEW 1908 CURTISS
WORLD'S RECORD MOTORCYCLES

STILL RETAIN THE LEAD

because of their many superior features of engine and frame construction.

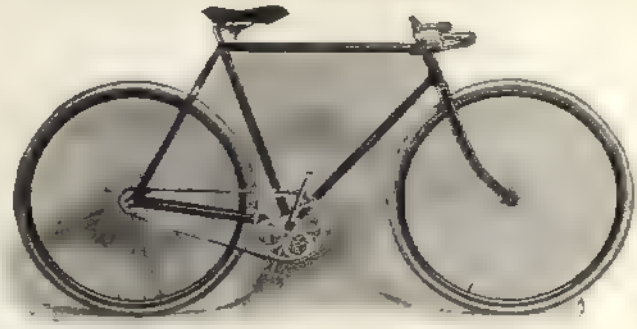
HERE ARE SOME OF THEM!

Roller bearing engine throughout.
Glass oil gauge in case.
Double grip control.
Magneto ignition.
Positive automatic lubrication.
Accessibility of parts.
Light weight.
Long wheel base.
Large fuel capacity.
Strong frame construction.
Perfect transmission.
Surplus power and speed.

Get our 1908 Catalog and let us tell you the rest. Good territory open to agents. Get our "Special Proposition."

G. H. CURTISS MFG. CO. Hammondsport, N. Y.

1908 YALE AND SNELL BICYCLES



Are Being Delivered Now

Profit by last year's experience and tie to a LIVE WIRE. Handle the best bicycle made and get prompt deliveries.

HUSSEY HANDLE BARS

"The mark of a high grade bicycle." All jobbers have them.

The Consolidated Manufacturing Co.
TOLEDO, OHIO.

This year, as in previous years, the entire output of the Elmore factory is pledged and sold—with agents urging an increase of their allotment

Elmore
VALVELESS 2 CYCLE

Far and away the most active car in the American sales market today is the valveless two-cycle Elmore.

For five years it has been the steadiest selling car in this country.

These are positive effects due to a fixed and positive cause.

The stability and prosperity of the Elmore, past and present, has arisen primarily from the fact that it is a *two-cycle* and a *valveless* car.

The history of all four-cycle cars has been one of change and caprice in public choice—largely due to caprice and change and uncertainty in construction.

The history of the valveless two-cycle Elmore has been one of steady progression and steady popularity due to the gradual evolution of a fixed principle of whose correctness every Elmore owner has been enthusiastically convinced.

Thus, today,—no Elmore owner can be coaxed or coerced away from the Elmore. This is due to the riding and operating results he gets *because* it is valveless; and *because* it is two-cycle.

Owners of four-cycle cars may and do waver in their allegiance, change cars, become discouraged and abandon any and all four-cycle cars—the Elmore owner will remain supremely loyal because he is supremely satisfied.

After the Elmore two-cycle engine was perfected and all valves eliminated, only one thing remained to emphasize and widen the gap between the Elmore and all other cars, to wit: the ignition system.

In the 1908 car has been installed an ignition system substantially as amazing in its results as the action of the two-cycle engine itself—a system, for instance, which will run the car 2000 miles on one set of six-inch dry cells.

The paragraphs give you in the rough some idea why the sales of the Elmore are impervious to changing conditions which affect four-cycle cars—why we are inclined to bend a listening ear to the appeal of our agents that each and all of them be alloted more cars.

THE ELMORE MFG. CO.

904 AMANDA ST., CLYDE, OHIO.

MEMBERS A. L. A. M

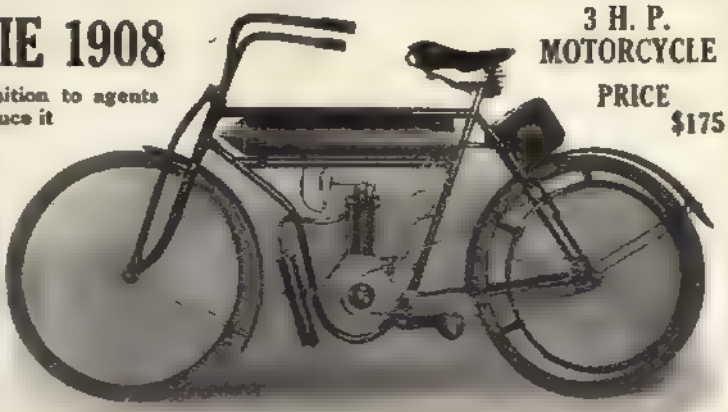
THE ERIE 1908

Most liberal proposition to agents to introduce it

SPECIFICATIONS:
Stitched non stretching wide flat belt drive. Curtiss compensating float feed carburetor with throttle. Bowler Wire Grip Control. Choice of tires and saddles. GUARANTEED one year. **IMMEDIATE DELIVERY.** No waiting.

MOTORCYCLISTS
Send 15 one cent stamps for new book "THE MOTORCYCLE." It tells about the mechanism, care, operation, how to get more power, etc. Name make of motorcycle for low prices on accessories.

Write to-day for Catalogue and special prices.



3 H. P. MOTORCYCLE
PRICE $175

Motorcycle Equipment & Supply Co., 3 Lake St., Hammondsport, N. Y.

Headquarters for Bicycle and Automobile
Lamps and Generators
AUTOMOBILE SUPPLIES
Hine-Watt Manufacturing Co.
58-60 Wabash Ave., Chicago, Ill.

BICYCLES SUNDRIES **1908** TUBINGS FITTINGS
Progressive Cycle & Auto Supply Co.,
81 Chambers St., N. Y., U. S. A.
Motorcycle Parts
Automobile Accessories.
WRITE FOR CATALOGUE.

The HARLEY-DAVIDSON MOTORCYCLE
A winner wherever it competes.
Prompt deliveries guaranteed.
HARLEY-DAVIDSON MOTOR CO.
MILWAUKEE, WIS.

TORPEDO MOTOR CYCLE
Winner of perfect score in Chicago-Kokomo 414 mile Endurance Run
New models exhibited at Chicago Auto Show
The HORNECKER MOTOR MFG. CO.
WHITING, IND.

The Reliance
Best Motor Cycle Proposition in the world :: :: ::
RELIANCE MOTOR CYCLE CO.
ELMIRA, N. Y.

THE STAR

Who would think of building Bicycles, Coaster Brakes, Lawn Mowers, Sewing Machines and etc., etc., without using The STAR BALL RETAINERS therein?

WHO, tell us?

THE STAR BALL RETAINER CO.
LANCASTER, PA., U. S. A. and
BERLIN S. O. 36. GERMANY

A AND J

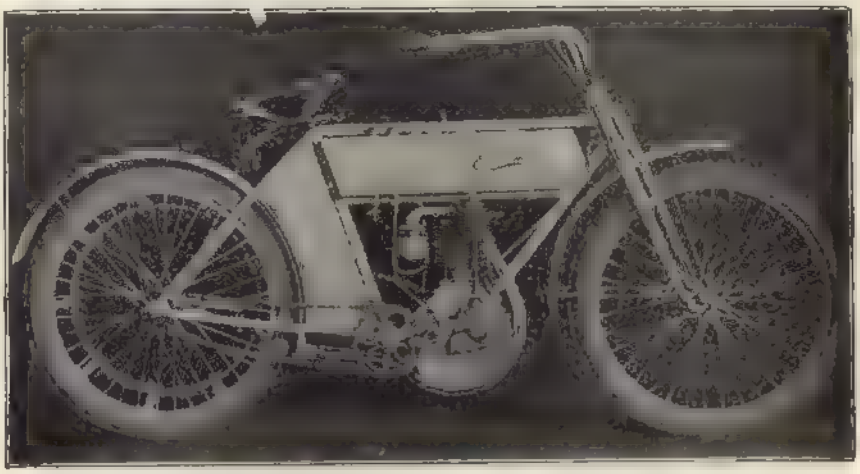
IF YOU
- Sell Bicycles.
- Build Motorcycles.
- Do Any Kind of Repairing.
- WANT TO
  - Braze Cast Iron.
  - Open a Brazing Shop.

We Have Something for YOU.

THE A. & J. MFG. CO.,
26 W. Randolph St.,
CHICAGO, ILL.

SPROCKETS
for Bicycle and Motorcycle
WE MAKE 90 PER CENT OF THE SPROCKETS USED
THE PARISH & BINGHAM CO.
Cleveland, Ohio

THE EXCELSIOR AUTO CYCLE



Light Running. Silent. No Engine Vibration.

THE "ONE MAN RUNABOUT"

IS JAM FULL OF NEW FEATURES BIG STRONG POINTS OF PRACTICAL ADVANTAGE new applications of engineering resource and skill new combinations and fine adjustments BRAND NEW IDEAS worked out to the last detail of perfection all combined to make the finest riding machine ever sent out from a factory shipping room.

A FEW SPECIAL FEATURES ARE

LOW SADDLE POSITION
LONG WHEEL BASE
EASY RIDING POSITION
PERFECT SPRING FORK
LOW DISTRIBUTION OF WEIGHT

EXCELSIOR 3 1-4 H. P. Guaranteed. Price, $225.00

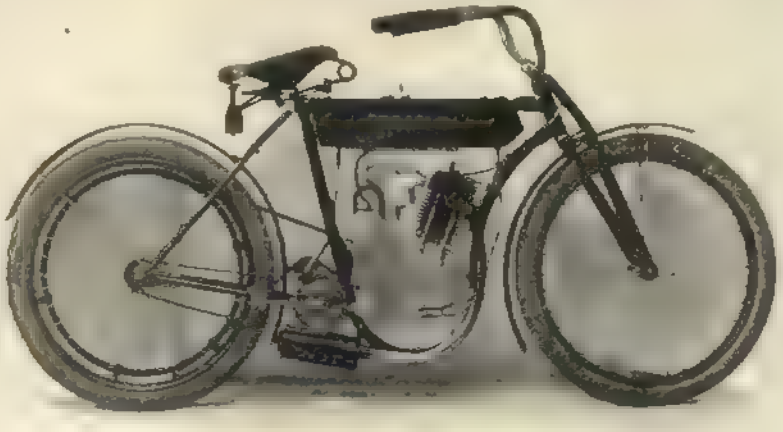
Write for Details and Agency Proposition. Send for Motor Cycle Supplies Catalogue "A"

EXCELSIOR SUPPLY COMPANY

233-235-237 Randolph St., Chicago

The 1908 Bradley

Bradley Motor Co., 268 Diamond street, Philadelphia, offers its 1908 motorcycle with either magneto or battery ignition, listing at $250 or $225, respectively. The Bosch high tension magneto is furnished. This 1908 Bradley is driven by a 3½ H. P., 3¼ x 3⅝ motor and is guaranteed for one year against defects in material or workmanship. Hence this machine is calculated to meet the requirements of those who desire a strong, reliable and powerful motorcycle, and the option on ignition apparatus is in harmony with the popular vogue. Back of the machine stand the eight years' experience of the maker in repairing and building motorcycles.



Right Side View Bradley, 1908, Motor Cycle.

The motor is rated at 1800 r. p. m. The cylinder and head are integral and cast of a smooth, close grained, gray iron, and the bore is ground to size. The piston is made as light as is safe and is fitted with three rings and four oil grooves. A tool steel pin connects the piston to the rod which is held in place by a tapered screw fitted with a split cotter pin. The rod is a steel drop forging and has a long, phosphor bronze bushing. The valves have steel stems and cast iron heads 1½ inches in diameter, with 45-degree tapered seats. The cam shaft gears are in a case on the outside of the crank case and are easily accessible without disturbing other parts of the motor. The Bradley floatless carburetor is used.

Transmission is by means of a 1½-inch, waterproof, double, flat belt cemented and riveted, the belt being adjustable from the saddle. Control is in the grips exclusively, and it is unnecessary to remove the hands from the handlebars at any time. An exhaust valve lifter is provided to relieve compression and make easy starting.

Left Side View Bradley, 1908, Motor Cycle, with Bosch High Tension Magneto. Price, $250.

The equipment includes Person's improved motor saddle, extra wide mudguards, No. 3 Standard, rubber motorcycle pedals, 28 x 2½ G & J tires, tool bag and tools. The tank holds 6 qts. gasoline and 2 qts. lubricating oil.

FRANKLIN

Does it pay to own a heavy automobile?

Figure it out. Get the weights of a dozen of the best-known 5-passenger touring-cars. See them weighed yourself. The 5 passenger Franklin Type D weighs under 2200 pounds. The other makes weigh on the average a third more.

That means they use up a third more horse-power, a third more gasoline, and a third more tires, doing the same work as Type D. More gasoline than that, because the air-cooled Franklin engine gets more power out of the gasoline.

Another thing: There is less strain on Type D—or any Franklin. The Franklin does not jolt and rack itself. It lasts longer. It has 4 full-elliptic springs and a laminated wood frame. It has no water-cooling weight and complication. It is easy to ride in; easy to handle, strong, and safe. You can use all the power. The Franklin carries the same load on American roads further in a day than any heavy automobile.

The price of Type D is $2850, yet in six months it costs less than a heavy automobile bought at a considerably lower price.

The Franklin Type G family touring car at $1850 and weighing 1600 pounds does more work and costs less to use than any 2000 pound automobile. The 6 cylinder 7 passenger Franklin Type H costing $4000 weighs only 2600 pounds and is more economical to maintain than the average 5-passenger, 4-cylinder machine.

With a heavy automobile you cannot get the benefit of the excessive operating cost.

Is it good business to pay for useless weight?

Write for the catalogue describing Franklin models.

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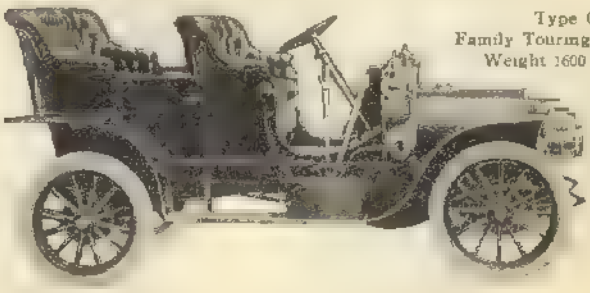
Member Association Licensed Automobile Manufacturers



Type G
Family Touring Car, $1850
Weight 1600 pounds

MOTORCYCLE SUPPLIES

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More Agents Wanted

3 H. P.

1909 ERIE MOTORCYCLE

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We have a so a special outfit for repairing the bicycle also a [illegible] for sale in bicycle. Send for other catalogue.

MOTORCYCLISTS send 10 cents for [illegible] "The Motor cyclist." It is [illegible] of the cents [illegible]

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Fastest American Mile

in competition

and World's Record, 61 cu. in. class

Curtiss Motorcycles

One Mile 46 2-5 seconds

Ormond Beach, Fla.

G. H. CURTISS MFG. CO.

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THE ORIGINAL.

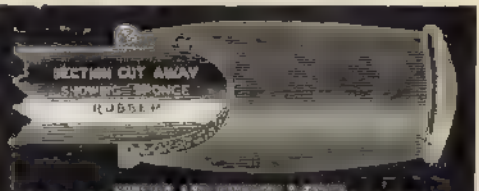
The Sartus Ball Retainer

(Brought out in 1896)

BEST ANTI-FRICTION

THE SARTUS BALL BEARING CO.

99 Chambers Street, NEW YORK CITY



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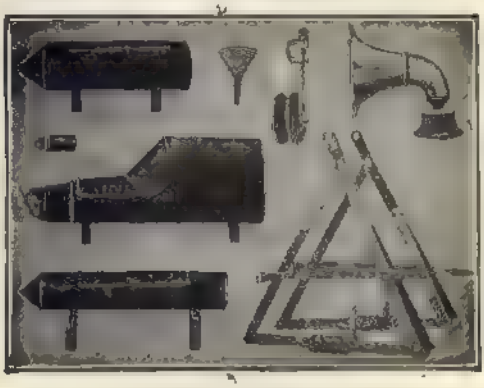
1908 INDIANS, Chain or Gear.

1908 ROYALS, Belt Driven.



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THE BEST IN THE WORLD

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$40 MOTOR CYCLE

We have the largest line of New and Used Motor Cycles, Parts and Supplies in the country, at the lowest prices. Every machine guaranteed. We are the largest and only exclusive Motor Cycle house in the world. Send for our 1908 Catalog. Repairs a Specialty. Motors and Fittings for Air Ships. Motors for Railway Velocipedes.

Harry R. Geer Co., 856 McLaran Ave., St. Louis.

BRADLEY MOTOR CYCLES

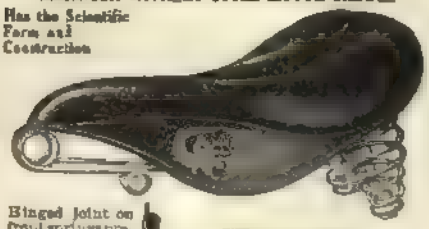
Single and Double Cylinder, $200 and $275

C. E. BRADLEY MOTOR CO.

268 Diamond St. Philadelphia, Pa.

MESINGER CAVALRY STYLE MOTOR SADDLE

Has the Scientific Form and Construction



Hinged joint on front springs prevents breaking and gives more life to spring

THREE SIZES
No. 1, Small. No. 2, Medium
No. 3, Large

The top is raised in front and back sufficient to prevent the rider from slipping forward or backward—is curled-hair padded and has the form of a horseback saddle.

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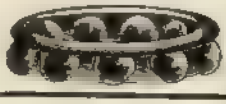
Who would think of building Bicycles, Coaster Brakes, Lawn Mowers, Sewing Machines and etc., etc., without using The STAR BALL RETAINERS therein?

WHO, tell us?



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Fifth Year on the Market and Thoroughly Proven
Beware of Untried Imitations

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IF YOU
- Sell Bicycles.
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We Have Something for YOU.

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Mayo Motor Cycles

The Most Perfect Mechanically Constructed.
Power and Speed to Spare.

MAYO DAMPER CO., Pottstown, Pa.

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2¼ H P Magneto and Spring Forks,	$250 00
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4½ H P. Accumulators and Spring Forks,	$300.00
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GEO. V. LYONS MOTOR CO.,
Broadway near 87th St., New York City.

SPROCKETS
for Bicycle and Motorcycle

WE MAKE 90 PER CENT OF THE SPROCKETS USED

THE PARISH & BINGHAM CO.
Cleveland, Ohio

Torpedo Motorcycles

Model B.,	2½ H. P.,	$190.00
Model C.,	3 "	225.00
Twin Cylinder,	5 "	275.00

Write for catalogue.

THE HORNECKER MOTOR M'F'G. CO.
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IDEAL HANDLE BARS AND STEMS

Bars made in all shapes, widths and drops. Stems straight and forward extension, ⅝ in., ¾ in., ⅞ in. forging and malleable casting, nickeled and in the black. Motor bars and stems. Agents desired in every city. Apply for territory to

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WE CAN MAKE SHIPMENTS ON RECEIPT OF ORDER AT PRESENT

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of GOLDBERG

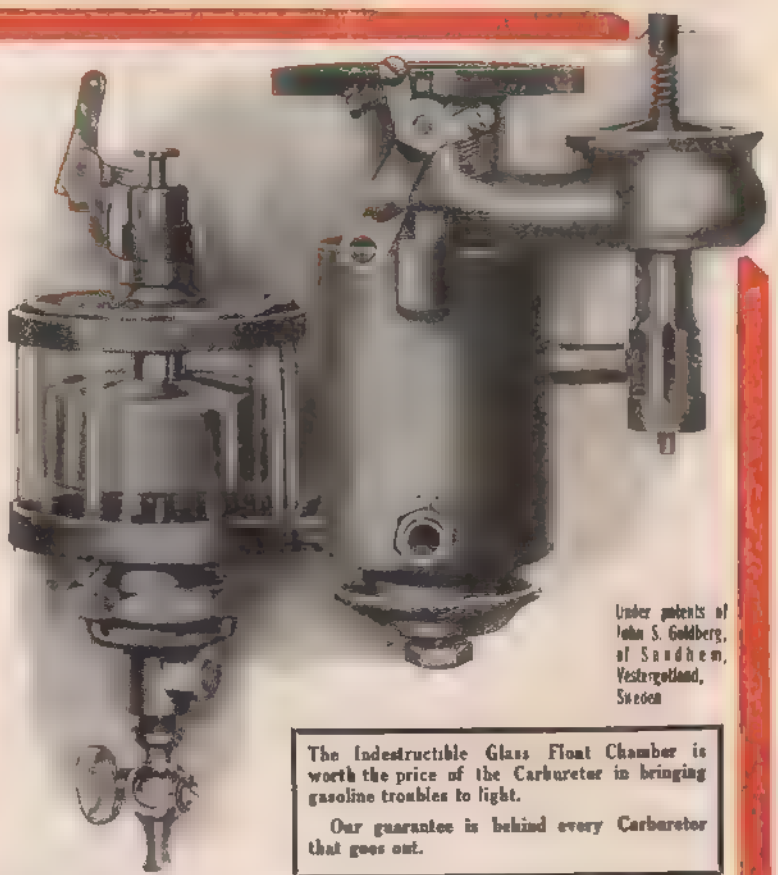
THE MECHANICALLY PERFECT

CARBURETORS

"THE CARBURETOR THAT MAKES GOOD SUMMER AND WINTER"

Try One at Our Expense

and have no more starting troubles or wrong mixtures resulting from weather changes



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The Indestructible Glass Float Chamber is worth the price of the Carburetor in bringing gasoline troubles to light.

Our guarantee is behind every Carburetor that goes out.

The **GOLDBERG** water jacketed mixing chamber acts as a weather equalizer.
No more trouble on one speed when a good adjustment is obtained on another
Because of its double compensation the **GOLDBERG** acts alike on all speeds.
No more flooding.
The large float and needle valve and heavy spring make action positive.
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The screen in the intake pipe keeps it all out.
Write at once for Circular No. 4, which tells the whole story.

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THE HANDY GUN For Unhandy Places

The Only High Grade All Metal Oil Gun on the Market

READY FOR USE,

"B"—LINE OILERS Put oil grease or graphite

Where you want it
When you want it
In Exact Quantity You Want

PLUGGED,

"B"—LINE OILERS

Serve as a tight receptacle for the carrying of such lubricant as the trip may demand.

Being **ALL METAL,**

"B"—LINE OILERS are guaranteed

Not to leak
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Not to inconvenience.

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ELECTRICAL

HORN ATTACHMENT

JUST PRESS THE BUTTON

and with the **GRACK-UNICUM** attachment you get a loud, penetrating, **continuous** sound from your horn, far more effective in warning pedestrians and teamsters than the short, intermittent "honk honk" of the pneumatic horn.

The electric current is taken from your ignition battery (storage or dry cells) and the **sound will tell you when the battery ought to be renewed.**

The construction is very **simple and durable,** all working parts are enclosed and of best material. There is **nothing to get out of order,** no broken bulbs, or clogged reeds to cause trouble.

The push-button being fastened to your steering wheel, there is no need to remove the hand when you want to sound the horn. A second push-button may be installed in the tonneau.

When your friends see and hear the "Grack-Unicum" on your car, they will all order the same.

Each attachment and horn guaranteed.

Write for bulletin No. 16.

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High Grade Black Finish

NO. 96-97-98

We can furnish any of our lamps to order in our High Grade Black Finish. Not an enamel or Japan, but an electro plate. Will not chip or rust. A damp sponge and chamois occasionally used keeps it clean and bright. Beautiful and rich in appearance, durable and serviceable.

On account of labor necessary to produce this finish we are obliged to charge 15% advance over regular price

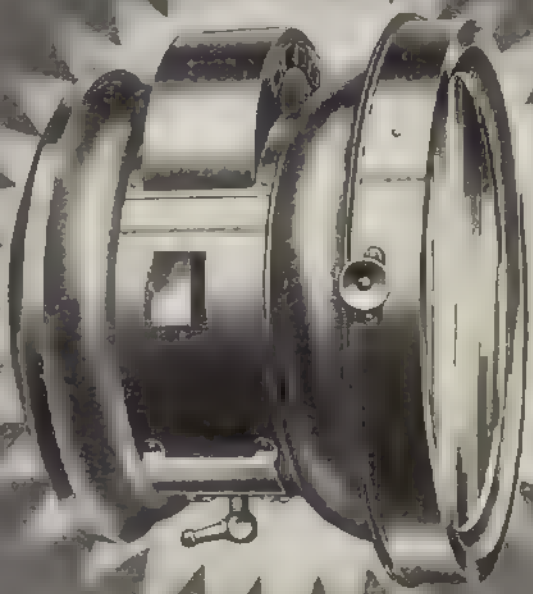
GRAY & DAVIS,

Amesbury, Mass.

GRAY & DAVIS

1908

LENS MIRROR SEARCHLIGHT



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will be used as the regular 1908 equipment of the following high grade cars

Pierce, Stoddard-Dayton, Reo, Peerless, Jackson, Pennsylvania, Rainier, Winton, Pope-Hartford, Premier, Elmore, Dorris, Garford, Royal.

Write for style book and prices. Lamp illustrated, design patent allowed September 1907.

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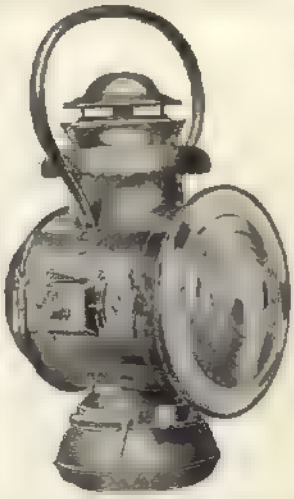
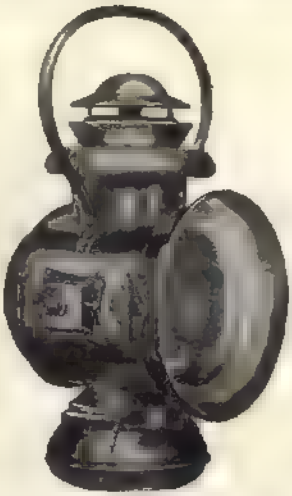


TOURIST

HAM'S

"Cold Blast" Automobile LAMPS Are Beyond Competition



CORONA

They Are The Best in Every Respect.

They are handsome in appearance, the material is of the best quality, the workmanship and finish, both interior and exterior is excellent, the front glasses do not sweat and have a greasy appearance, they give an immense light, will not smoke, emit no odor and as all parts are easy of access they are very easy to keep clean.

ROCHESTER

They Give a Strong Penetrating Light.

We are the originators of the genuine "Cold Blast" principle, the principle on which our lamps are built and which alone is due the excellent burning qualities and the brilliant and intense white flame which our lamps produce, as they are built scientifically correct, the combustion is perfect and we can guarantee them not to blow or jar out.

MONITOR
Tail & Inspector Lamp

SPECIFY HAM'S

And insist on getting them.

If you equip your car with Ham's Lamps you are through with oil lamp troubles, that's why you want to be sure that they are Ham's. There are none just as good.

Write for one of our new catalogues. Address "Dept. D."

C. T. Ham Mfg. Co.
ROCHESTER.

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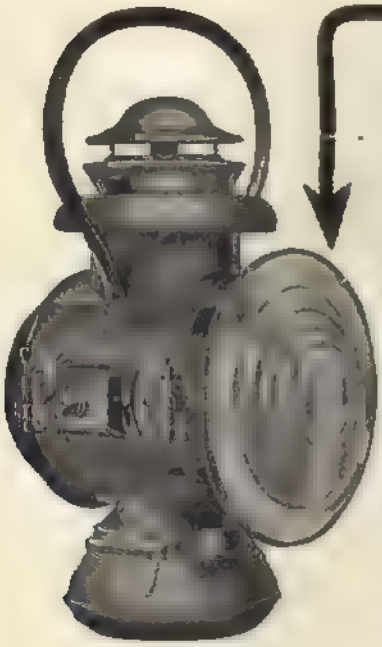


HAM'S TOURIST

See That Lens

It is very powerful, but if you place a candle behind it the results would be very unsatisfactory, therefore the most perfect principle of reflection and projection is useless with a poor light, but the more intense the light the greater the results. This is where our "Cold Blast" principle comes in. It produces a brilliant and intense white flame, which combined with the perfect reflection of our lamps and this powerful lens, throws an immense, strong, penetrating light that you can always depend on.

If you equip your car with a pair of Ham's Tourist Lamps, you'll find that it will not be necessary to use your acetylene lamps very often. They are preferable to acetylene lamps for city driving, as they do not give that blinding, glaring light which is so objectionable and still the light produced is strong enough to serve you with entire satisfaction at any time, regardless of the condition of weather or roads.

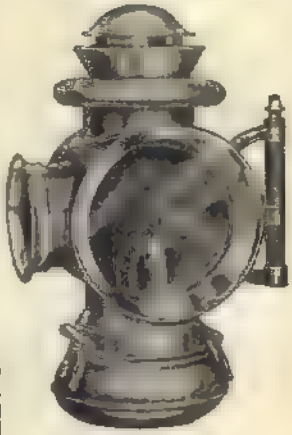
HAM'S "COLD BLAST" Automobile Lamps Are Built for Service

How About Your Tail Lamp?

No doubt you have experienced the trouble usually connected with unreliable tail lamps. If so you will appreciate the good features of a Ham Tail Lamp more than ever. When you have a Tail Lamp on your car that you know is going to stay lit when you light it, you experience a lot of satisfaction, I'll tell you, and you'll find that pleasure will be all yours if you equip your car with HAM'S LAMPS.

Specify and insist on getting HAM'S LAMPS. You'll not regret it as they are guaranteed to give satisfaction. Also send for one of our New Catalogues. Address Dept. D.

C. T. Ham Mfg Co.
ROCHESTER, N. Y.



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WHO, tell us?

THE STAR BALL RETAINER CO
LANCASTER, PA., U. S. A. and
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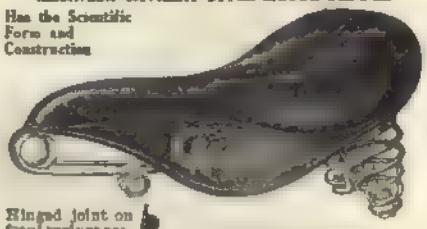
MESINGER CAVALRY STYLE MOTOR SADDLE

Has the Scientific Form and Construction



Hinged joint on front springs prevents breaking and gives more life to spring

THREE SIZES
No. 1, Small. No. 2, Medium
No. 3, Large

The top is raised in front and back sufficient to prevent the rider from slipping forward or backward is curled-hair padded and has the form of a horseback saddle

H. & P. MESINGER MFG. CO., 1861-1867 First Ave., New York

Fifth Year on the Market and Thoroughly Proven
Beware of Untried Imitations

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We Have Something for YOU.

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1908 ERIE MOTORCYCLE

More Agents Wanted

3 H. P.

LIST PRICE, $175

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MOTORCYCLISTS— [illegible] make [illegible]

MOTORCYCLE EQUIPMENT & SUPPLY CO. 3 LAKE ST., HAMMONDSPORT, N. Y.

Minerva Motorcycles.

2¾ H. P Magneto and Spring Forks,	$250.00
3½ H. P. Magneto and Spring Forks,	$2[illegible]
4½ H. P. Accumulators and Spring Forks,	$[illegible]
8 H. P. Accumulators and Spring Forks,	$350.00

GEO. V. LYONS MOTOR CO.,
Broadway near 87th St., New York City.

Bicycles and Motorcycles
SUPPLIES
MANUFACTURERS SUPPLIES CO.
418 Arch St., Philadelphia, Pa.

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IDEAL HANDLE BARS AND STEMS

Bars made in all shapes, widths and drops. Stems straight and forward extension ¾ in., 1⅛ in., ⅞ in. forging and malleable casting, nickeled and in the black. Motor bars and stems. Agents desired in every city. Apply for territory to

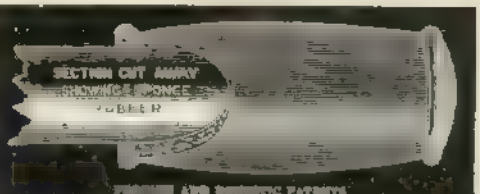
IDEAL PLATING CO., Inc., 3 Appleton St., Boston, Mass., U. S. A.

CHICAGO OFFICE—116 Lake Street SAN FRANCISCO OFFICE—832 Market Street

We can make shipments on receipt of order at present.

Unbreakable Wrenches

Years of Service in every Wrench
Unexcelled for Lightness and Strength.
Tempered Steel guaranteed not to spring nor break.
Write for prices to
ONWARD COMPANY,
Formerly E. T. Harris
531 to 551 West 15th St., CHICAGO, ILL.



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MAKE NO MISTAKE!
DEALERS AND JOBBERS, BE SURE AND HANDLE OUR LINE OF
SPONGE RUBBER GRIPS
MATTSON RUBBER CO., LODI, N. J.

THE ORIGINAL.
THE SARTUS
Ball Retainer
(Brought Out in 1896)
BEST ANTI-FRICTION
THE SARTUS BALL BEARING CO.
99 Chambers Street, NEW YORK CITY

MOTORCYCLE SUPPLIES
SEND FOR CATALOGUE
MOTORCYCLE SUPPLY CO.
HAMMONDSPORT, N. Y.

Torpedo Motorcycles

Model B.,	2¼ H. P.,	- -	$190.00
Model C.,	3 "	- -	225.00
Twin Cylinder,	5 "	- -	275.00

Write for catalogue.
THE HORNECKER MOTOR M'F'G. CO.
GENESEO, ILL., U. S. A.

Mayo Motor Cycles
The Most Perfect Mechanically Constructed.
Power and Speed to Spare.
MAYO DAMPER CO., Pottstown, Pa.

Persons Saddles
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PERSONS MANUFACTURING COMPANY,
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THE PARISH & BINGHAM CO.
Cleveland, Ohio

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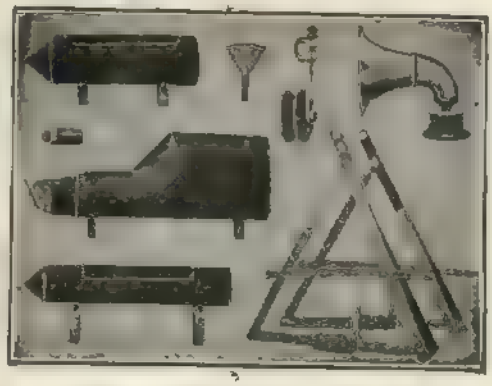
1908 ROYALS, Belt Driven.



Send for specialty and motor cycle catalogues.
F. B. WIDMAYER, 2312 Broadway, N. Y. C.

BRADLEY MOTOR CYCLES
Single and Double Cylinder, $200 and $275
C. E. Bradley Motor Co.
208 Diamond St., Philadelphia, Pa.

F. A. BAKER & CO.
MOTORCYCLE SUPPLIES
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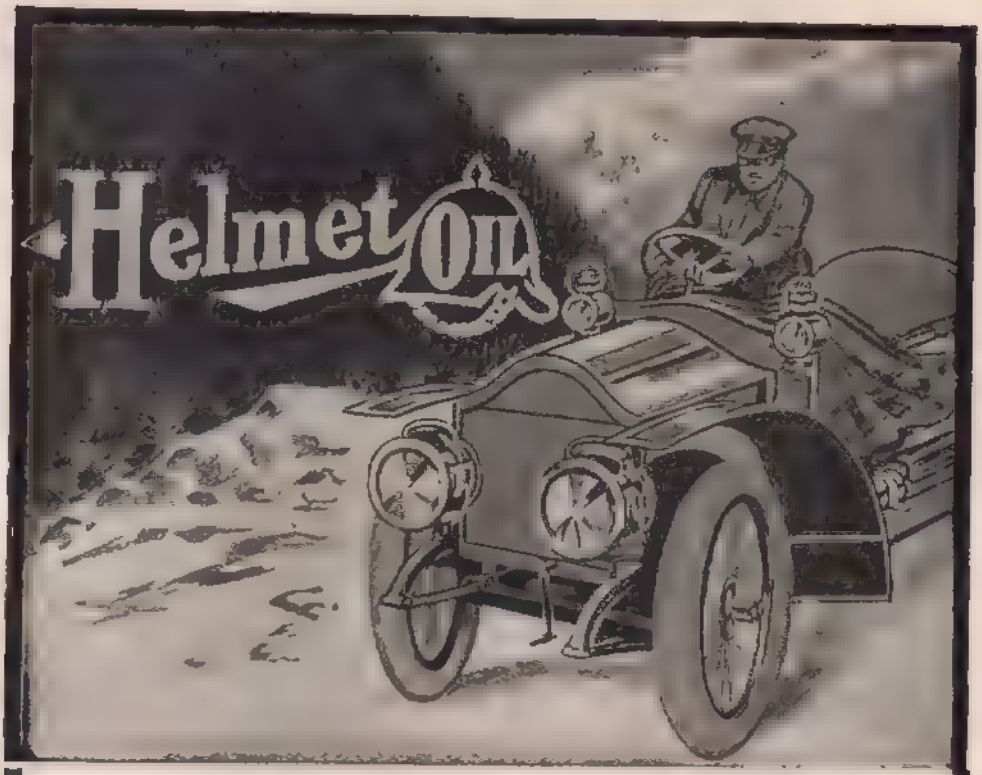
37 Warren St., New York



Helmet Oil Ends Your Oil Worries

Helmet Oil gives the same amount of lubrication on a cold day as on a hot day. Temperature does not affect it. You do not have to watch the lubrication of your car when the days change in temperature.

If you use common liquid oil, the bearings require constant watching. If the day is hot, liquid oil becomes thin flows too readily, the bearings are flooded and the supply is exhausted. On the other hand, if the day is cold, the liquid oil congeals, flows slowly and is very slow acting. Helmet Oil is not affected by heat or cold. It is not a liquid oil. On account of its "body" or density, the temperature of any day does not affect it. Helmet Oil does not contain an atom of pitch, gum or acid. It will give you perfect satisfaction on every bearing in your automobile.

The merits of Helmet Oil can be thoroughly demonstrated on *your* car *free* of expense to you.

Try It Free—Write for Booklet

Send us the name of your dealer and we will have him give you a free sample to try. Put it on the bearing that is giving you the most trouble and you will find that it will give perfect satisfaction.

"Auto Lubrication" is a booklet that we send *free*. It contains facts about lubrication that every automobile owner should know.

C. H. BESLY & CO., 13 S. Clinton St., Chicago, Ill.

THE K-W MAGNETO

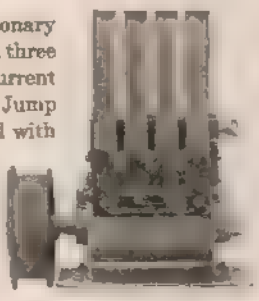
MODEL C & C-M

MODEL C-M for Make and Break Spark on heavy powerful engines. Gear Driven at Engine Speed. No Coil is needed. Will start engine direct from Magneto $45.00 for any number of cylinders.

MODEL C for Jump Spark. Gear driven at two and one-half times crank Shaft Speed Furnishes Ignition Current for the ordinary vibrating coil and timer System of Ignition. Price. $45.00.

MODEL M, "The Motor Boat and Stationary Engine Special." Is to be belt driven at from three to four times engine speed and furnishes current for vibrating coil and timer system of Jump Spark Ignition. The engine can be started with ease direct from Magneto and no batteries whatever are required. Price, complete with one single box coil, $35.00. Extra coils for same, $5.00 each. The lowest price Magneto Ignition Outfit in the world that will last indefinitely. Why bother with batteries when you can get more power by using a K-W Magneto?

Weather-proof and stretch-proof Belting, with fasteners 20 cents per foot.



MODEL M

THE K-W MASTER VIBRATOR

THE K-W MASTER VIBRATOR works in connection with any coil and greatly increases the power of the engine by exactly timing the Sparks to the same point of Ignition for every cylinder, thus giving exact synchronism. One of the very best attachments ever devised for Automobiles and Motor Boats on any multiple cylinder engines Must be seen and used to be appreciated One of the best investments that could be made in the way of improving your Ignition. Price $20.00.

K-W SPARK COILS wound especially for the K-W Magneto, and also the best and most economical battery coils ever made. Price, single box coils, $5.00 each. Single Cylinder dash coils, $10.00. Double Cylinder dash coils, $15.00. Three Cylinder dash coils, $20.00. Four Cylinder dash coils, $25.00 Six Cylinder dash coils, $35.00.

THE K-W COIL

THE K-W PLUG

THE K-W PLUG. Price $1.00. Postpaid to any address in U. S. or Canada. If your dealer doesn't handle it, send order direct to us. We guarantee this to be the best made plug on the market

K-W Magnetos are built to last and they do last. They are the cheapest that is good and there is nothing better at any price. Quality and good service will be with you long after the price has been forgotten.

Write for complete catalogue and tell us what car you have.

The K-W Ignition Company

40 POWER AVENUE, - Cleveland, Ohio

NEW YORK REPRESENTATIVE, A. H. Green & Co., 1691 Broadway
BOSTON REPRESENTATIVE, W. J. Forbes, 220 Congress Street
BUFFALO REPRESENTATIVE, F. A. Ballou, 879 Main Street

1902 SIX YEARS OF SUCCESS 1908

HOLSMAN

1907 Sales Over $600,000.00

Six years of successful manufacturing have made the Holsman car the leader of all high wheel automobiles. That it is the leader is undisputed, and in order to be entitled to this distinction the car must have features that will appeal to the purchaser.

Solid rubber tires and high wheels do away with the enormous tire trouble and expense, and insure comfortable riding and ability to travel bad roads.

Repairs Average Under $3.00 per Month

Air-cooled engine eliminates freezing water in winter and boiling water in summer, and also does away with complicated castings.

Cable drive makes it possible to apply the power near the periphery of the wheels where the leverage is greatest.

Official Gasoline Record, 29 Miles Per Gallon

Easy and simple control makes it more possible to avoid accidents.

There is an absence of complicated and expensive transmission gears, differential gears, friction clutches, friction bands and universal joints; all of which are subject to great wear and the source of continual expense.

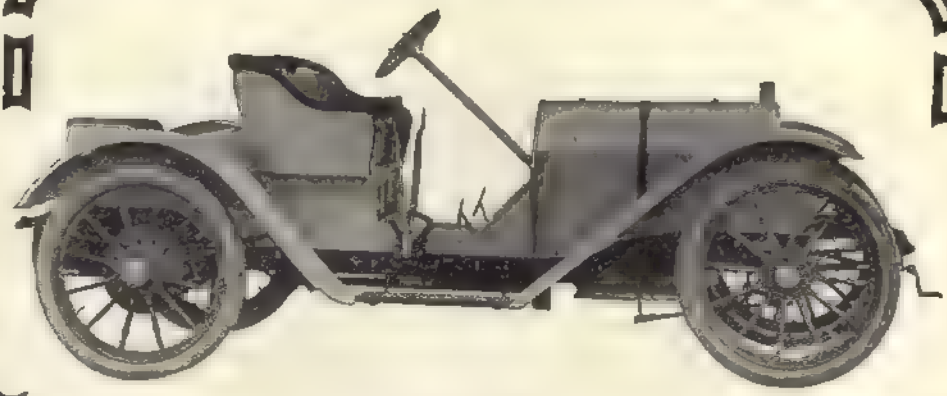
Handsome new Catalogue mailed free on request.

Manufactured by

The Oldest and Largest Manufacturers of Carriage Automobiles

THE HOLSMAN AUTOMOBILE COMPANY

Room 453, Monadnock Block, CHICAGO, ILL., U. S. A.



Imperial Roadster

The Car With

The Straight Line Drive

30-35 H. P.—36 in. Wheels, Selective Type Transmission—Eisemann Magneto.

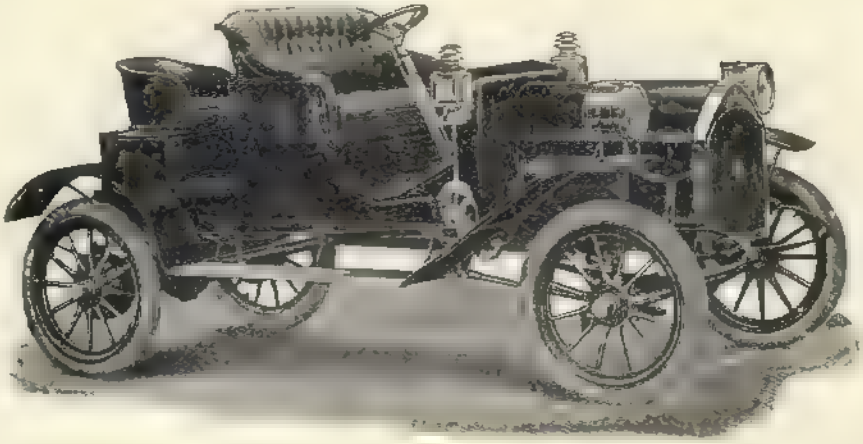
Double drop frame. Price, including gas lamps and generator—horn—tools, etc., $2500.00.

Manufactured by the

IMPERIAL MOTOR CAR CO.

Williamsport, Pa., U. S. A.

Members A. M. C. M. A.



The Silent Northern, Gentleman's Roadster, 24 H. P. $1600

F. O. B. Factory—Includes full gas and oil equipment.

It's Plain Common Sense

that if TWO high-grade horses would do the work of **four** ordinary horses—do all the work you want done—you wouldn't bother, or stand the expense of keeping FOUR,—would you? You'd have TWO good ones and save money.

Apply the same hard-headed, common sense to the purchase of an automobile and you will buy a Silent Northern Model C touring car.

Has every advantage of a four cylinder car; all the smoothness—all the flexibility of control—all the power needed for American roads—greater quietness, greater simplicity of mechanism, greater ease of operation—and costs **about fifty per cent less to operate.**

It will pay you to investigate the Silent Northern—pay you better to buy it. Move in the right direction today by sending for the Catalog. Write for it now.

NORTHERN

MOTOR CAR CO., DETROIT

Member Association of Licensed Automobile Manufacturers.

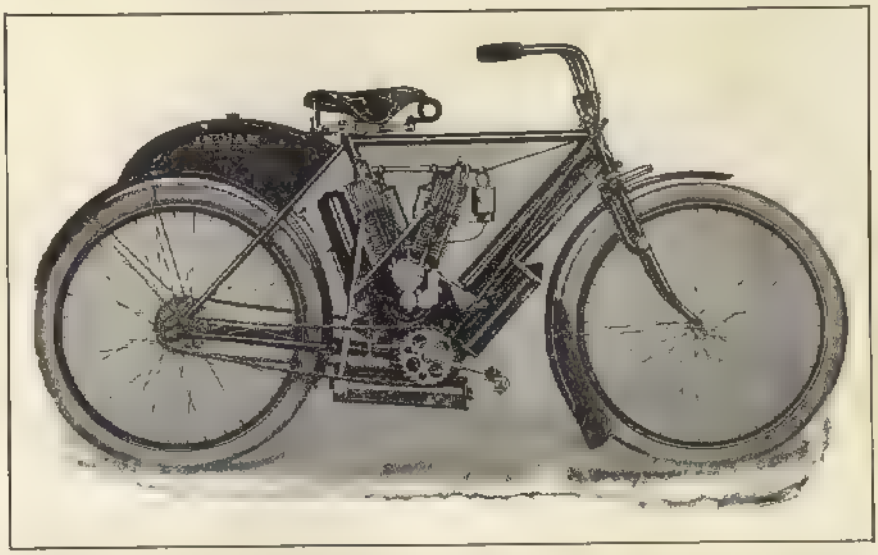
INDIAN MOTOCYCLES

SURPASS ALL OTHERS

They Have Won Every Important Contest for Speed, for Reliability, for Hill Climbing, for Economy

DURING SIX CONSECUTIVE YEARS

NO OTHER MACHINE HAS SUCH A RECORD



THE POPULAR MODEL FOR 1908—THE INDIAN TWIN.
THREE MODELS, SINGLE CYLINDER. ALL EXTRA GOOD.

Machines with a Reputation.
Machines that sell Themselves.
What more to you want?
Send at once for Catalogue P, and Particulars.

Hendee Manufacturing Company

Springfield, Mass.

SOLE AGENTS FOR BROOKS SADDLES FOR MOTOCYCLES AND BICYCLES. GET PRICES.

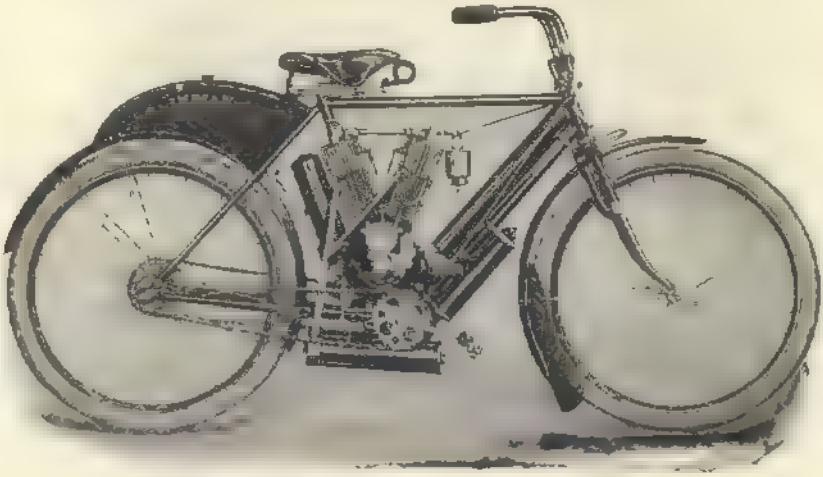
STILL WINNING
Records and Friends

The Indian

At Los Angeles, Feb. 22, the Twin Indian Broke World's Records Three Times

5 Miles in 5 Minutes 5¼ Seconds
5 Miles in 4 Minutes 58⅘ Seconds.
10 Miles in 10 Minutes, 2 Seconds.

ALL WORLD'S RECORDS, MADE ON A FLAT DIRT TRACK!!!



TWIN CYLINDER INDIAN

Another Winning:

On the Pasadena—Altadena Hill Climbing Course The TWIN CYLINDER INDIAN BEAT THE RECORD in 1 Minute 17 Seconds. Over 60 miles an hour!

Best automobile time in this event was 1.35 for a 75 h p special machine.

A SECOND INDIAN TWIN EQUALLED this time in spite of delay from collision.

All Indians are Good Machines for both Dealer and Rider

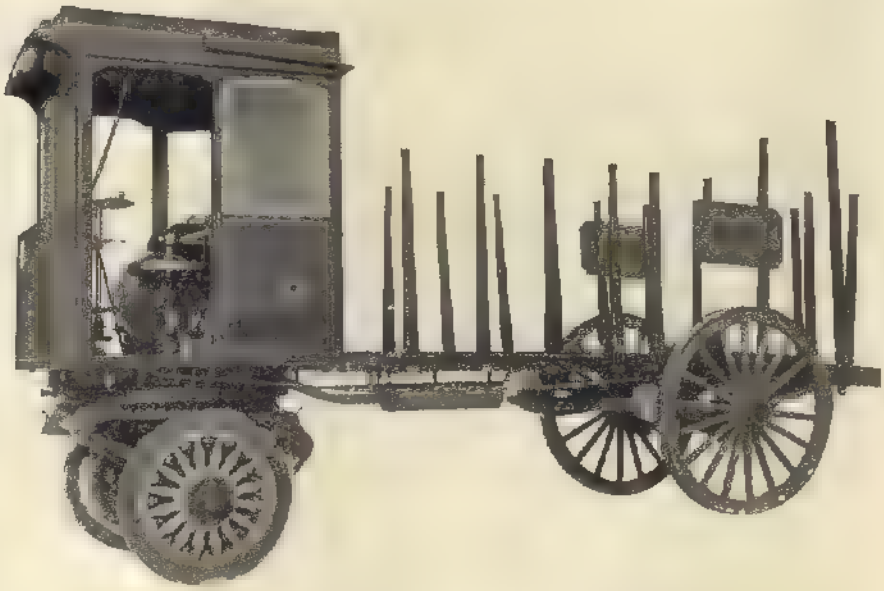
WRITE AT ONCE FOR PARTICULARS

Hendee Manufacturing Company

Springfield, Mass.

The International

The Different Kind of Truck



3 and 5 Tons Capacity.

¶ **OUR CONSTRUCTION** overcomes high maintenance costs, and permits of predetermining a customer's costs by a guarantee allowing of the successful operation of heavy motor trucks under all conditions where speed, capacity and mileage are essential requisites.

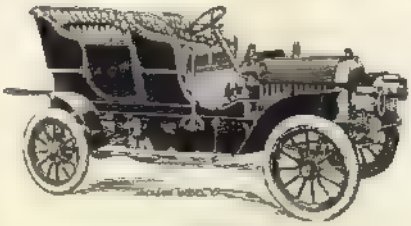
¶ **THE ADVANTAGES CLAIMED** are that it overcomes the objectionable features of present power wagon construction, and admits of its successful competing with other methods of transportation when given proper conditions and facilities to demonstrate its advantages.

Specifications and prices upon application.

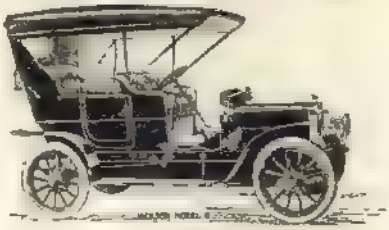
International Motor Car Co.

514 North Broad Street, Philadelphia, Penna.

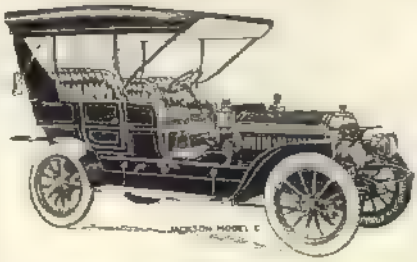
Jackson



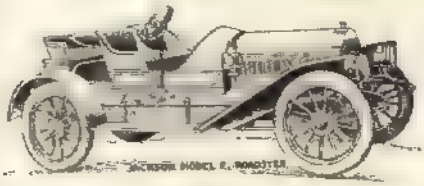
$1250



$1500



$2000



$2000

Jackson Model F Runabout

2-Cylinder Under Hood, 15-18 H. P., Shaft Drive, 90" Wheel Base, 30x3 Wheels, 3 Passenger.

$850

"No Sand Too Deep—No Hill Too Steep."

For 1908—A Line of Cars of Unparalleled Excellence.

We do not like to advise anyone to move along the "line of least resistance"—it is violating the ethics of social energy—but that is really what we are compelled to do when we encourage a dealer to sell Jackson cars: their merits are so apparent and so easily demonstrated that the cars literally *sell themselves!* But these same merits, we find, attract a selling organization of the highest efficiency. Men of intelligence who are quick to appreciate correct mechanical principles, and a good, staunch, thorough-built car throughout, for a few more of such we can find room in unoccupied territory. Write at once for catalogue and terms.

Jackson Automobile Co.,

JACKSON, MICH.

Member A. M. C. M. A.

"Petre" Automatic Carburetor

In designing the Petre automatic carburetor the particular object kept in view was to produce an instrument which will deliver a uniform mixture at all times, regardless of the variations in the speed or load. This has been accomplished by the maker, the Petre Carburetor Co., St. Clair and Ontario streets, Cleveland, O., by taking advantage of the natural law governing the flow of fluids—i.e., under a given pressure (or suction) the flow will be in direct proportion to the area of the port

The operation and construction of this carburetor will be seen by referring to the accompanying cut in which A is the air valve, which completely closes the air port when not in operation, and J is the gasoline valve (or needle) which completely closes the gasoline port at the same time. The action of the air valve is resisted by a long spring B, which is compresst to such an extent that the increased tension due to the slight lift of the air valve is practically negligible. The air valve will not open until a sufficient suction is produced in the mixing chamber to overcome the tension of the spring, plus the weight of the air valve.

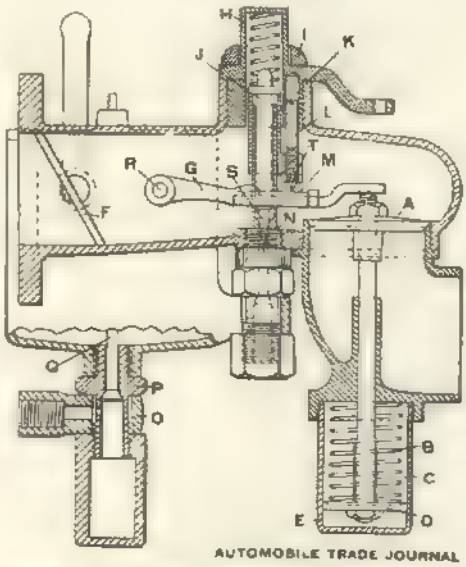
The suction, the manufacturers state, can never increase perceptibly beyond this amount, as no engine when fitted with the proper sized carburetor can maintain a greater suction than with the air valve wide open. Thus it is seen that the suction is fixt by the tension on the air valve spring regardless of any other condition. No matter how fast or how slow the engine may run or what load it may have the suction in the mixing chamber cannot vary, and the flow of gasoline or air will be in proportion to the areas of the ports.

The gasoline valve is lifted from its seat by the action of the air valve thru the lever G and the lifter K. It will be noticed that the fulcrum R of the lever G, the point at which the lever G rests upon the air valve A, and the point T, at which the lifter K rests on the lever G, are in a straight line, giving a lift to the gasoline valve J exactly in proportion to the lift of the air valve.

The tapered portion of the gasoline valve J is of such shape as to make the opening between it and the port S always in the same proportion to the area of the air valve corresponding to a proportionate lift. To change the proportion between the areas of the gasoline and air ports a regulating cap H is provided, by means of which the position of the point T, at which the lifter K rests upon the lever G may be varied at will, thus varying the lift of the gasoline valve. The air valve is provided with a glycering dash pot E, which makes the operation noiseless. The float is direct acting.

When the engine is started the throttle is of course slightly open, allowing the engine to create a suction in the mixing chamber; as soon as the suction has reached the required degree the air valve will open slightly, causing a proportionate opening of the gasoline valve.

By opening the throttle more the suction in the mixing chamber is momentarily increased, causing the air valve to lift until the opening is sufficient for the demand of the engine, when the suction will become normal, and the air valve will stop. Should a heavy load be suddenly thrown upon the engine its speed would be reduced, and consequently the suction would be reduced, and the air valve and gasoline valve would partially close, until the normal suction would be reached when



Section of the "Petre" Automobile Carburetor A, air valve; B, air valve spring; C, brass tube; D, dash pot piston; E, dash pot; F, throttle; G, lever; H, regulating cap; I, regulating cap clamp; J, gasoline valve; K, gasoline valve lifter; L, adjusting pin; M, hardened steel washer; N, gasoline valve seat; O, gasoline connection; P, float valve seat; Q, float valve; R, fulcrum; S, port; T, resting point of lifter K. As will be seen from the cut the float chamber is situated in back of the gas outlet pipe. The gasoline inlet valve is also sectioned to show its interior construction.

they would stop. The suction then remains normal, and the proportion between the areas of the ports cannot change owing to the construction

The only variation is then in the quantity which is according to the demand. When the throttle is opened the suction in the mixing chamber will tend to increase if the engine speed increases, but if the engine is so loaded that its speed cannot increase, then no harm has been done by opening the throttle as neither of the ports has been altered by the operation of the throttle. Four sizes of this carburetor are offered, viz.: 2-inch, 1¾-inch, 1½-inch and 1¼-inch, listing at $75, $60, $50 and $45.

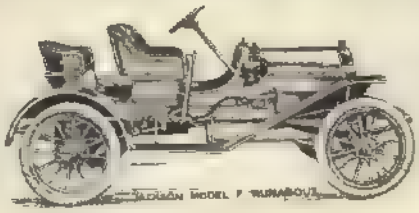
Jackson

$1250

$1500

$2000

$2000



$850

"No Sand Too Deep—No Hill Too Steep."

Amidst all the pomp, glitter and circumstance of the many Automobile Shows of 1907-08, surrounded by and compared with competing cars of various prices and degrees of excellence, this superb line of Jackson cars has compelled the attention of all. They are the Anti-Hard Times Cars. They are made right and sold right. They are winners.

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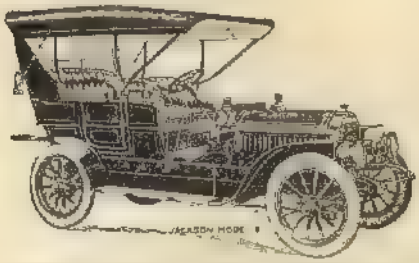
Jackson Automobile Co.

JACKSON, MICH.

Member A. M. C. M. A.

JACKSON

As Usual A Winner



MODEL E, JACKSON, $2000. 4-Cylinder, 35 H. P. 111-inch Wheel Base

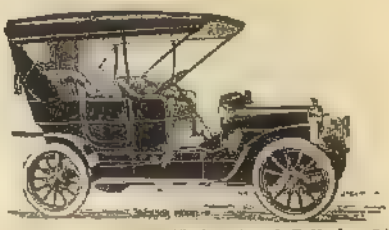
In the Fort George Hill Climb, held at New York City, April 9th, a regular stock MODEL E, JACKSON selling for $2000 defeated all competitors easily and made faster time than any Touring Car regardless of price.

Other Models

MODEL C, JACKSON, $1250, 2 Cylinders, 24 H. P.

MODEL F, JACKSON, $850, 2 Cylinders, 18 H. P.

Engine under hood, Shaft Drive.



MODEL D, JACKSON, $1500. 2-Cylinder, 24 H. P., Engine under hood, Shaft Drive, Selective Type Transmission

JACKSON AUTOMOBILE CO.

Jackson, Michigan

THE JEWEL

The "Jewel 40"–4 cyl. 40 H. P.–$3000

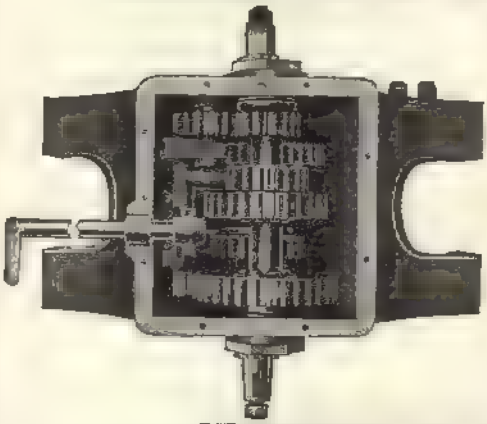
The **"JEWEL 40"** is our large touring car model for 1908, and a wonderful value for the price. It is equipped with the famous Rutenber motor, has a pressed steel frame, with special, one-piece drop forged front axle, I-beam section. Has 36" wheels with 4" quick detachable or clincher type tires; 117" wheel base and 56" tread. Improved steering gear. Double ignition system,—Bosch magneto and four unit coil and storage battery. The costliest and most valuable ignition system on any car selling for $3,000. Seats 7 passengers comfortably.

The **"Jewel 40,"** **Jewel Runabout** and **Stanhope** offer the dealer an exceptionally fine proposition. Write for particulars.

Forest City Motor Car Co.
111 Walnut St.,
MASSILLON, OHIO

BROWN-LIPE GEARS

SELECTIVE AND PROGRESSIVE SLIDING GEAR TRANSMISSIONS



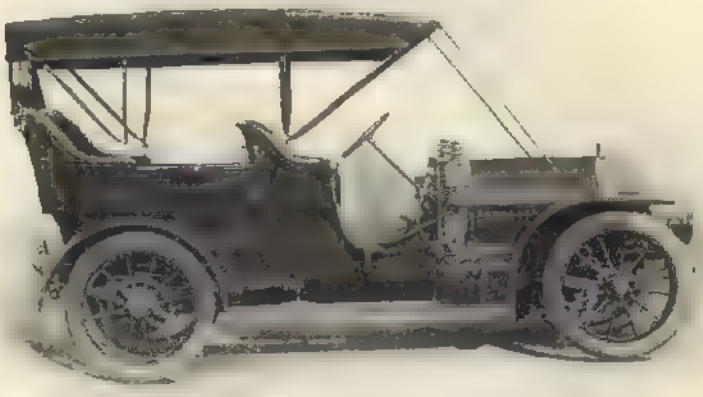
DIFFERENTIALS AND STEERING GEARS

Direct Factory Salesmen—K. FRANKLIN PETERSON, 166 Lake St., Chicago. THOMAS J. WETZEL, 29 West 42nd St., New York City.
Sales Agent, Carrying Stock—CHAS. E. MILLER, 97 Reade St., New York; 318-320 N. Broad St., Philadelphia; 202-4 Columbus Ave., Boston; 406 Erie St., Cleveland, Ohio.
Eastern Sales Agents.—POST & LESTER CO., Hartford, Conn.

BROWN-LIPE GEAR CO., 206 S. Geddes St., Syracuse, N. Y.

THE JEWEL

The Non-Skidding Car



SPECIFICATIONS

Rutenber Motor
Bore and Stroke—4¼"x5
Double Ignition.
Double Oiling System.

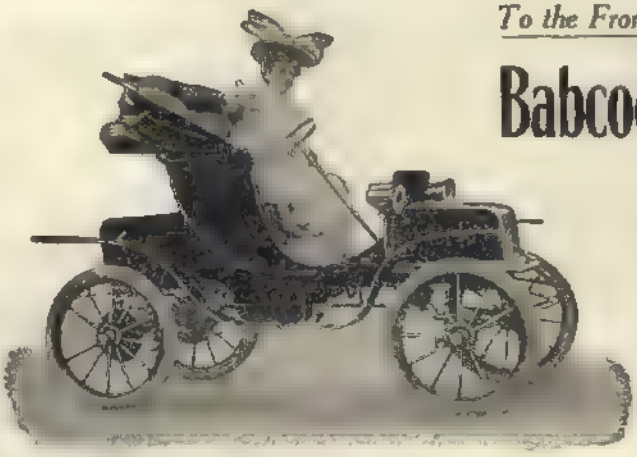
Timken Axles and Bearings
Hodge and Non-Skid Differential.
36" Wheels.
WRITE FOR CATALOG.

36"x4" Tires
120" Wheel Base.
7 Passenger Body.

The Forest City Motor Car Co., 114 Walnut St., Massillon, Ohio

To the Front in Popular Favor.

Babcock Electrics



MODEL 6—VICTORIA—PRICE, $1700

Have, during the eight years they have been on the market, given such satisfaction that there are never any second-hand ones for sale.

Babcock batteries and perfect running-gear make a car that is ideal.

Greater Mileage and Greater Speed Than any Other Electric

"When you build right, it is right and works right."—Babcock.

FIVE MODELS WRITE FOR CATALOGUE

BABCOCK ELECTRIC CARRIAGE CO., Builders

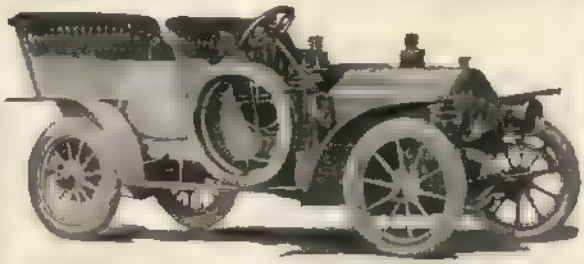
238 WEST UTICA ST., BUFFALO, N. Y.

New York Branch, 1591 Broadway, Cor. 48th St.

Car with all the features.
Long wheelbase insuring flexibility.
Every car a masterpiece.
Very best of obtainable materials used.
Every part of the car guaranteed.
Large brakes, powerful and efficient.
A car without a weak spot.
Nothing better at any price.
Don't buy until you have had a demonstration.

Every Cleveland car receives the personal supervision of our Factory expert, assisted by the most skilled artists and operators in the different crafts that go to make up the component parts of an automobile, that attention is given to the most minute details which results in the CLEVELAND being an absolutely perfect finished product—an automobile which suits the most exacting purchasers.

1908 Cleveland Models
Touring Car
Runabout
40-45 H. P., $3,500



Cleveland
Motor Car Co.

1659 Broadway
New York City

Factory: Milwaukee, Wis.

R. & L. ELECTRICS

The graceful lines and elegance of finish of these cars are apparent from a casual inspection. Their comfort, safety and convenience are brought out in actual use

R. & L. ELECTRICS require no chauffeur. Can be operated by a woman as easily as by a man. They are **CLEAN, NOISELESS—ODORLESS.** Ideal for city or suburban use.

Two new features are the **SAFETY LOCKING DEVICE** and **ELECTRIC BRAKE CONTROL** to prevent tampering or theft and insure absolute safety of operator. These wonderful improvements found only on **R. & L. CARS.**

SEND FOR 1908 CATALOG **describing and illustrating our eleven different models**

THE RAUCH & LANG CARRIAGE CO.
627 Superior Ave., Cleveland, Ohio

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Suburban Auto Garage, Cincinnati, O.
Mason Carriage Co., Davenport, Ia.
Coburn Auto Co., 15th and Colfax Ave., Denver, Colo.
Wm. F. V. Neuman & Co., 1342 Woodward Ave., Detroit, Mich.
A. H. Murphy, 918 State St., Erie, Pa.
Toledo Motor Car Co., Toledo, Ohio.
Teegarden & Pratt, 214 North Main St., Goshen, Ind.
Fletcher J. Cowherd, Jr. Auto Co., 3206 Troost Ave., Kansas City, Mo.
James A. Wellman, Pembroke Bldg., Manchester, N. H.
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Union Elec. Lt. & Power Co., St. Louis, Mo.
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ATLAS

A Cold Agency FACT

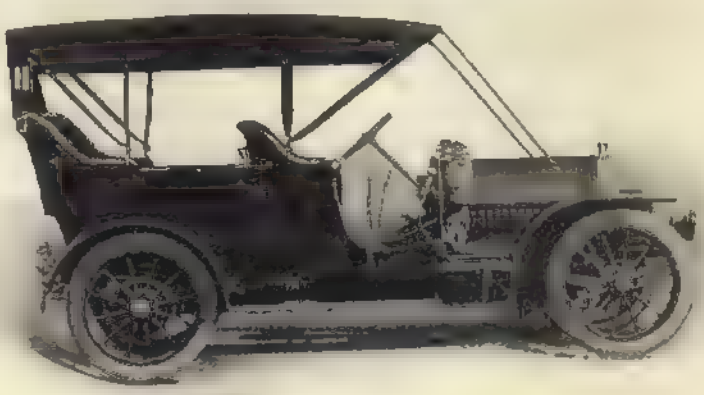
IF YOU CAN SHOW A BUYER A **FIVE PART,** TWO-CYLINDER ENGINE THAT WILL DO **ALL THE WORK** OF A 40 PART FOUR-CYLINDER, **HE'LL BUY IT.** TWO-CYCLE HAS **WON,** JUST AS SURELY AS THE SUN RISES, AND THE **ATLAS** PERFECTED TWO-CYCLE AUTOS ARE THE GREATEST SELLING PROPOSITION **IN THIS WORLD** TO-DAY. WRITE US **NOW.**

THE ATLAS MOTOR CAR CO.

Harry W. Knox, Pres. **SPRINGFIELD, MASS.**

THE JEWEL

The Non-Skidding Car



SPECIFICATIONS

Rutenber Motor
Bore and Stroke—4¾"x5".
Double Ignition.
Double Oiling System.

Timken Axles and Bearings
Hedgeland Non-Skid Differential.
36" Wheels
WRITE FOR CATALOG.

36"x4" Tires
130" Wheel Base.
7 Passenger Body.

The Forest City Motor Car Co., 114 Walnut St., Massillon, Ohio

The Baker Queen Victoria is the

Most Popular Electric Carriage

for ladies' use. Elegant in its appointments and furnishings, so simple that the most inexperienced can drive it with perfect assurance; noiseless, spacious, comfortable, and perfectly clean through the absence of lubricants.

The Baker Victoria is interchangeable with the Baker Coupé body, thus making a closed carriage for winter use at very short notice.

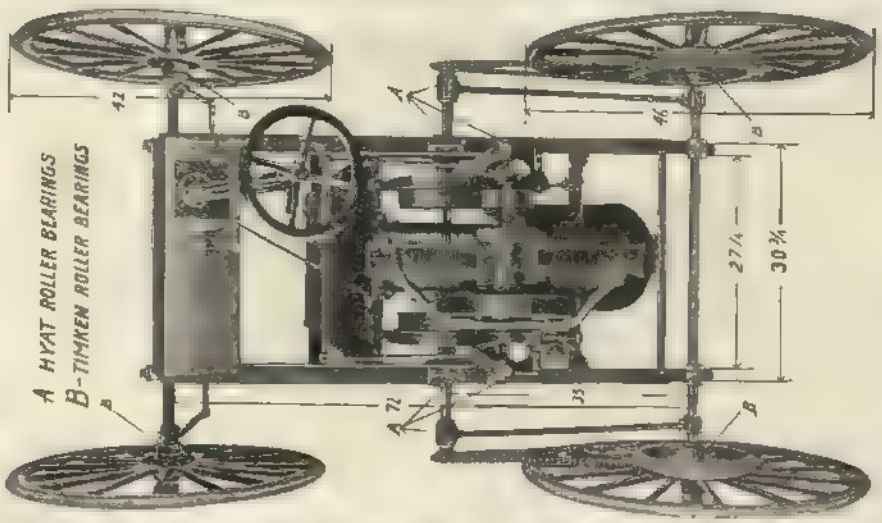
Baker Electric Vehicles

have largest mileage at smallest expense. They start and stop without jerking. The Baker motor and controller requires no attention. The Baker Electrics are the standard of Electric Machines and the only automobile without a repair bill. The Baker Electrics have the fewest parts and the fewest adjustments and are the result of 8 years of progressive electric automobile building.

Send for Complete Catalog
showing the entire line of 15 different models and giving desirable information about them

Baker Motor Vehicle Co.
38 W. 80th St., Cleveland, Ohio
Agencies in Principal Cities

"THE REEVES" COMPLETE CHASSIS
FOR HIGH WHEEL AUTO BUGGY



¶ This chassis contemplates the complete buggy excepting body tires, gasoline tank, spark coil and battery. ¶ Every part carefully designed and each chassis tested before shipment. ¶ Complete information and specifications furnished upon application.

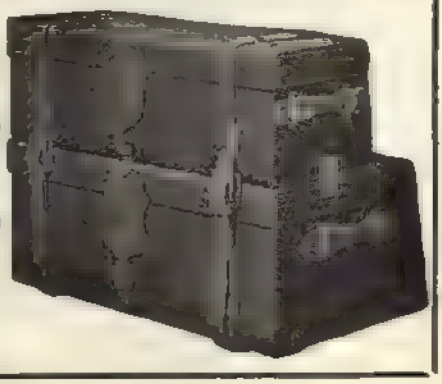
REEVES PULLEY COMPANY, Columbus, Indiana

Empire Tires
WEAR LONGEST

EMPIRE AUTOMOBILE TIRE COMPANY
TRENTON, N. J.

Lunch and Ice Kits
CHRISTMAS GIFTS
DUST AND ODOR PROOF
Auto Trunks

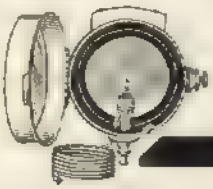
Single, Double
Triple and
with Inside Grips
Write for Special Catalogue
Manufactured by



"Boston's half century baggage maker."

W. W. WINSHIP
71 Summer Street Boston, Mass.

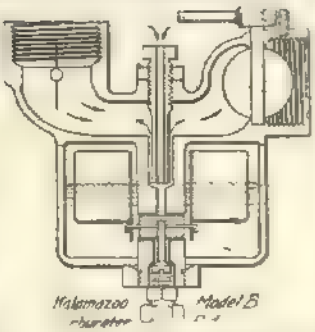
Royal Battery
The Owner's Favorite
because it **GIVES THE MOST MILEAGE**
Send for "Treatise on Storage Batteries."
ROYAL BATTERY CO. 108 Duane St., New York



"Royal Multiplex" Lamp and Attachment
Made to fit Gas, Oil and Tail Lamps
Brilliant Light—Clean—Sure—Economical
Send for interesting booklet
ROYAL BATTERY CO., 108-110 Duane St., New York

The Kalamazoo Carbureter
(patent pending)
MODEL B
The simplest yet. Fully guaranteed.
(See reading matter for description)

We are also continuing our multiple-jet model, which for 1908, will be furnished in both horizontal and vertical outlet. Send for circular.



KALAMAZOO CARBUREFER CO., - Kalamazoo, Mich.

Removable Coupe Tops

Light
Serviceable
Stylish
To attach to any machine.
Write for specifications

Tops—Bodies

of all descriptions, for any car. Built by experienced men.

IRVIN ROBBINS CO., Indianapolis

High Grade Automobile Tops.
Send for Catalog.

The C. Z. Kroh Mfg. Co.,
Toledo, Ohio, U. S. A.

$375 and Upwards

THE automobile for winter use. Air cooled—no pipes to burst. Solid tires—no punctures. Simple, durable, powerful, reliable. Double cylinder—9-10 H P. Economical in gasoline consumption. A good proposition to Automobile Dealers. *Write for Terms and Catalog*

MOTOR DELIVERY WAGONS $450.00 AND UPWARDS

W. H. Kiblinger Company
Auburn, Ind. 466-468 W. 7th Street

BODIES

THE BARNDT-JOHNSTON AUTO SUPPLY CO., Columbus, Ohio

SEND FOR NEW CATALOGUE

GORDON AUTO TOP HOOD
The VEHICLE APRON & HOOD CO., Columbus, O.

BODIES and FENDERS

The Auto Body Co.
LANSING, MICH.

MEYERS' TOPS

Spell Quality

Perfect in workmanship and finish. Material the best.

Our guarantee goes with every top.

Send for catalog and prices. It's economy.

The Meyers Auto Top Co.
DAYTON, O.

AUTO-TOP FABRICS

of every description. Samples and price list furnished upon request

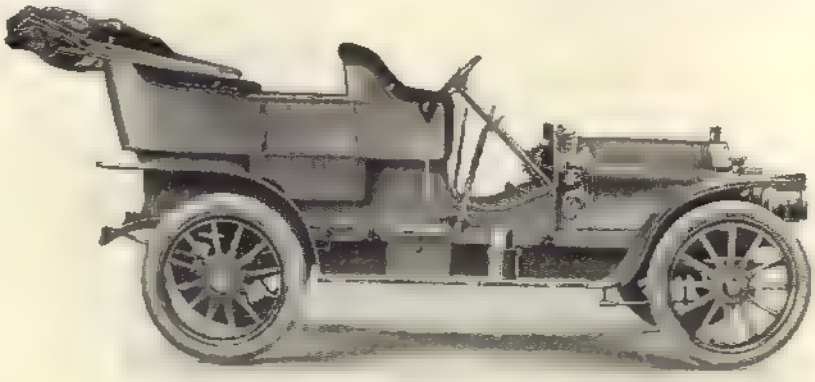
L. J. MUTTY CO., BOSTON

1908 MODELS

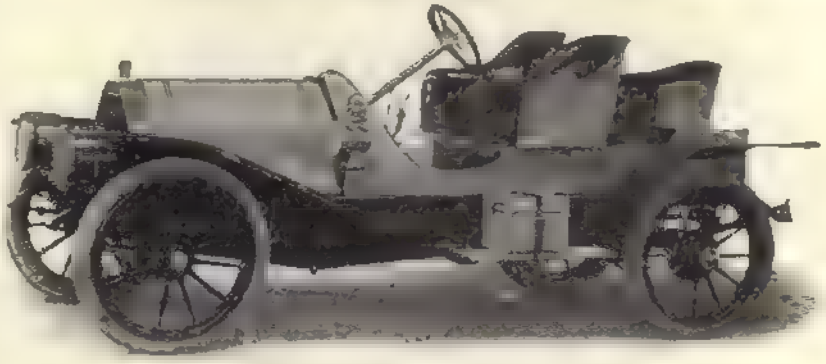
OF THE

KISSEL KAR

TOURING CAR :: ROADSTER :: LIMOUSINE



MODEL D, TOURING CAR. Price $2000



MODEL E, ROADSTER. Price, $2000

Practically the same as Model D, the difference being in fenders, steering column, dash and body.

THE LIMOUSINE, Price $3200, is also similar to Model D, the body being different.

THE KISSEL MOTOR CAR CO., Hartford, Wis.

DISTRIBUTORS

Webb Jay Motor Co., Chicago and central territory, J. H. McDuffee, Watrous, N. Mex., territory west of the Rocky Mountains, Maxfield & Rice Bros., Minneapolis, Minn., H. C. Stratton Co., Boston, Mass., J. L. B. Wilhide, Baltimore, Md., Lime & Curry Co., Darrian, Conn., F. A. Bennett, Portland, Ore., L. T. Shetler, Los Angeles, Cal., A. T. Wilson, Denver, Colo., Shoemaker & Lynn, Missoula, Mont., Gavitt Auto Co., Newton, Kan.; R. S. Rutherford, New Albany, Ind.; Sweeney & Nall Auto Co., Brooklyn, N. Y.

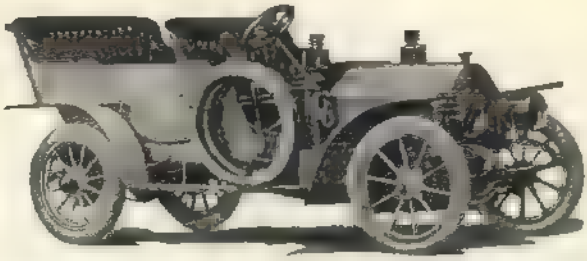
You're in Business for Big Sales--Good Profits --Delighted Patrons?

Then Get Busy With The Great

40-45 H. P. 1908

Cleveland

AT $3500!



As you value your success for the coming season and ensuing seasons as well, don't fail to get next to this selling sensation of the coming year.

Be sure you learn our proposition for the coming season. Write in now. Then look over this crackerjack car at our nearest branch—after you see the new Cleveland, we'll leave it to you whether or not you can afford not to handle this triumphant car.

We hope you read the detailed specifications of this 40-45 H. P. model in the December number of this publication. If you didn't, it is well worth your while to turn back and read them through. We again desire to call your special attention to the following features: Ignition, lubrication, transmission, brakes and ratchet-sprag.

And don't forget that the 1908 Cleveland Chassis is distinctly our own product.

We Want a Few Good Agents.

THE CLEVELAND MOTOR CAR CO.

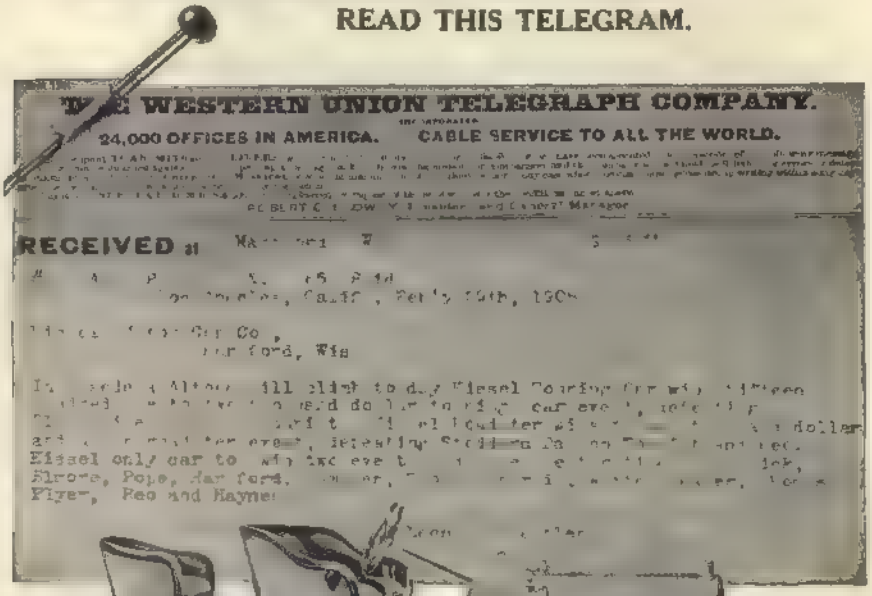
GENERAL OFFICE AND SALESROOMS

1659 Broadway, - New York City

KISSEL KAR Wins Two Events

THE KISSEL KAR AGAIN DEMONSTRATES ITSELF AS THE CAR OF MODERATE COST WHICH HAS NOT ONLY EQUAL, BUT THAT SUPERIOR RUNNING EFFICIENCY WHICH IS SOMETIMES ATTRIBUTED ONLY TO EXTRAVAGANTLY PRICED MACHINES.

READ THIS TELEGRAM.



THE WESTERN UNION TELEGRAPH COMPANY.

24,000 OFFICES IN AMERICA. CABLE SERVICE TO ALL THE WORLD.

RECEIVED at

Kissel only car to win two events

40 H. P.

4 Cylinder

Roadster, $2,000 **Touring Car, $2,000**

Write for Catalogue and Name of Nearest Representative

KISSEL MOTOR CAR CO., Hartford, Wis.

KISSEL

KAR BREAKS NEW RECORDS ON THE PACIFIC COAST

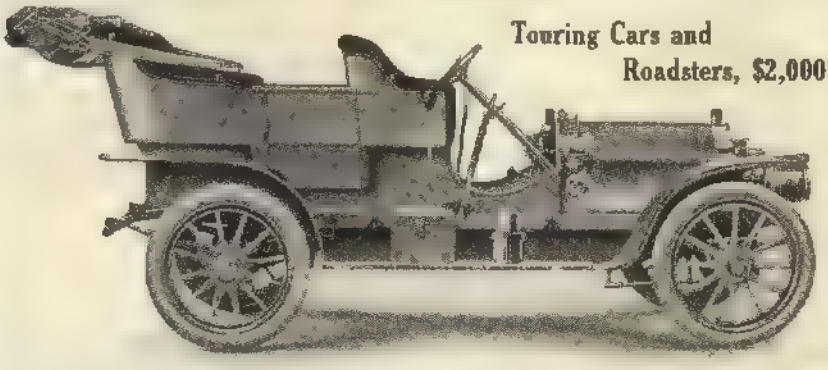
March 20th the Kissel Kar broke Los Angeles to Dagget record. On the same day broke Los Angeles to Victorville record—105 miles in 3 hours, 50 minutes. Also Los Angeles to San Bernardino record—65 miles in 2 hours, 5 minutes. Two events in the big Altona Hill climb, Pasadena, Cal., you remember were won by the Kissel Kar competing with cars costing more than a third more than the price of the Kissel Kar. The Kissel Kar is a

$2,000 CAR WITH A $3,000 EQUIPMENT

40 H. P., 4 CYLINDER
FLOATING TYPE REAR AXLE
SELECTIVE TYPE TRANSMISSION
TIMKEN ROLLER BEARINGS

It will save you actually a thousand dollars to get our free catalogue and investigate. Write for it today and name of representative who will give demonstration.

Touring Cars and Roadsters, $2,000



KISSEL MOTOR CAR CO., Hartford, Wis.

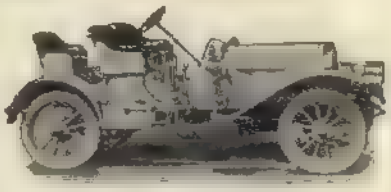
KNOX

Cars combine the most modern features known in Automobile manufacture. They are the Automobiles of power and economy. Knox UNFAILING RELIABILITY is only made possible by the integrity of Knox construction.

In the commercial, as well as the pleasure class, Knox Cars are supreme. They represent the perfection of eight years' experience. Maximum quality. Minimum up-keep. Moderate price.

One to four tons capacity. Write for catalogue.

"L" Tonneau, $2700; with top, $2850

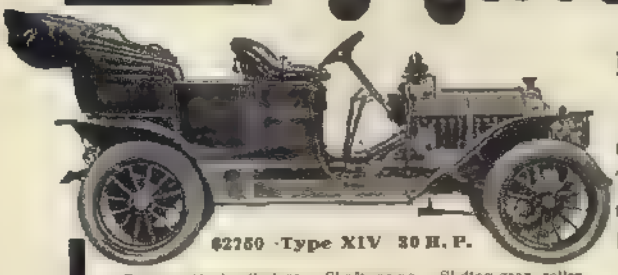


"H" Sportabout, $2500

KNOX AUTOMOBILE CO., Springfield, Mass.

Largest Manufacturers of Commercial Automobiles in U. S. A.

The Autocar



$2750 -Type XIV 30 H. P.

Four vertical cylinders. Shaft drive. Sliding-gear, roller-transmission. Four forward speeds and reverse. Five passengers.

Reliability Maintained

Built with the same honest materials and thorough workmanship that have enabled The Autocar to gain an unrivalled reputation for *Reliability*—a reputation that has grown steadily for ten years.

The Autocar Touring-Car ideally combines light weight with ample power, speed and carrying capacity. It is easy to control, silent-running, simple to understand and care for.

The Autocar Runabout The Doctor's Car —Type XV, 12 H. P. $1200

Two horizontal-opposed cylinders under hood. Shaft drive. Sliding-gear, roller-bearing transmission. Three forward speeds and reverse. Fully equipped, including top gas lamps, generator, storm apron, etc. Three passengers.

Recognized as a standard in small cars. The one car that has successfully taken the place of the horse in the physician's professional rounds. *Write for "Autocar Life" and 1908 Catalog.*

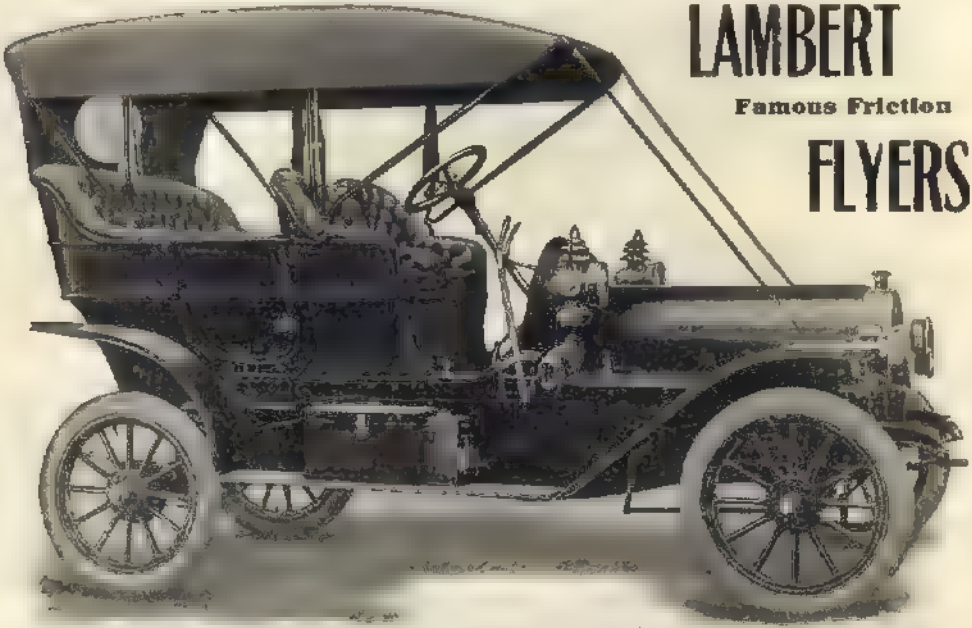
Member: A. L. A. M.

The Autocar Co ARDMORE, PA.

LAMBERT

Famous Friction

FLYERS



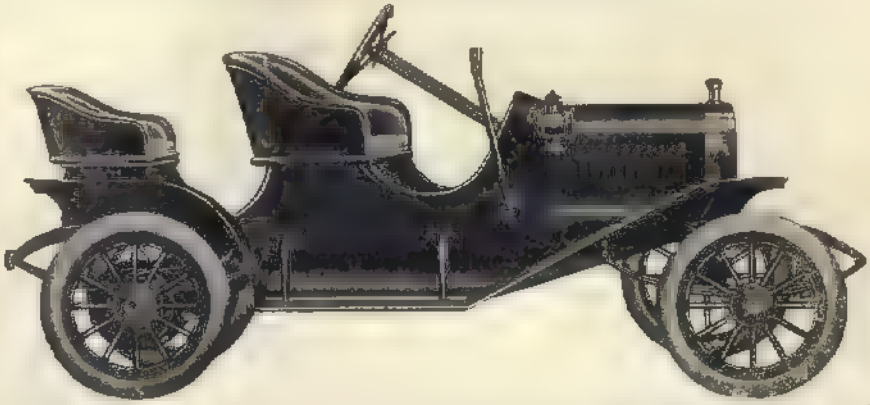
LAMBERT, "MODEL M."

This five-passenger, side-entrance car, with a detachable tonneau is especially built to supply the increasing demand for this, the most perfect, practical and popular car.

SPECIFICATIONS, MODEL M

Wheel Base—105 inches.
Tread—56 inches.
Frame—1½ x 3 x ¼-inch angle steel.
Wheels—32-inch wood artillery.
Tires—32 x 3½-inch pneumatic.
Motor—Rutenber 4-cylinder, 35-40 H. P.
Speed—1 to 50 miles per hour.
Carbureter—Float feed.
Ignition—Jump spark
Radiator—Honeycomb type, with fan
Drive—Shaft and bevel to rear axle.
Brake—Internal expansion in each rear hub
Bearings—Timken Roller Bearings on front wheels.
Clearance—11 inches.
Gasoline Capacity—20 gallons.
Weight—1900 pounds.
Equipment—Cape extension top, two large gas lamps with generator, two oil lamps, tail lamp, horn, tool boxes on running board, full tool equipment.

PRICE—$2 000, Complete, F. O. B. Factory



LAMBERT, "MODEL 18."

or "The Car Without a Gear Box," is the simplest, robbiest and best car on the market for the money.

SPECIFICATIONS, THE LAMBERT 18

Wheel Base—95 inches
Tread—56 inches
Frame—Pressed steel.
Wheels—30-inch wood artillery.
Tires—30 x 3-inch Clincher
Motor—2-cylinder opposed, 18 H. P.
Speed—1 to 35 miles per hour
Bearings—Hyatt roller and standard ball.
Clearance—12 inches.
Gasoline Capacity—10 gallons.
Painting—Deep red.
Upholstering—Fine quality of leather.
Weight—1350 pounds.
Equipment—Two oil lamps, horn, and full tool equipment.

PRICE—$800, Complete, F. O. B. Factory.

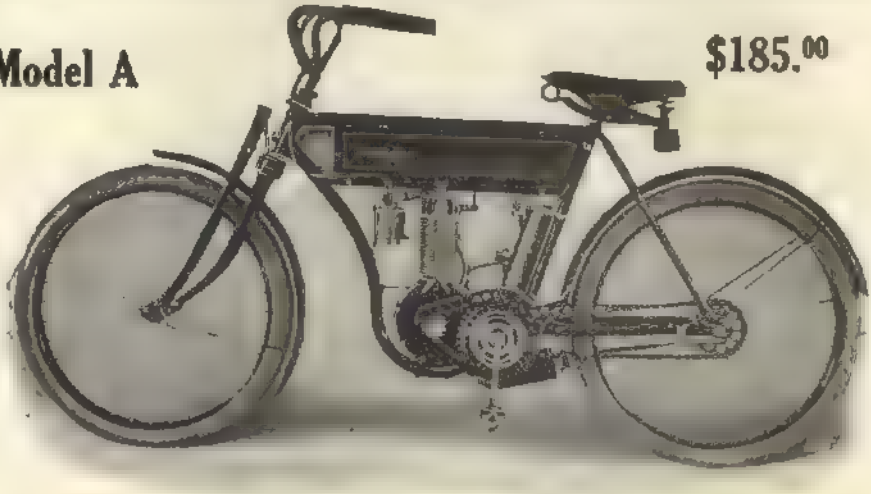
WRITE FOR ILLUSTRATED BOOKLETS. A FEW GOOD AGENTS WANTED.

THE BUCKEYE MANUFACTURING CO., Anderson, Ind.

THE "LIGHT"

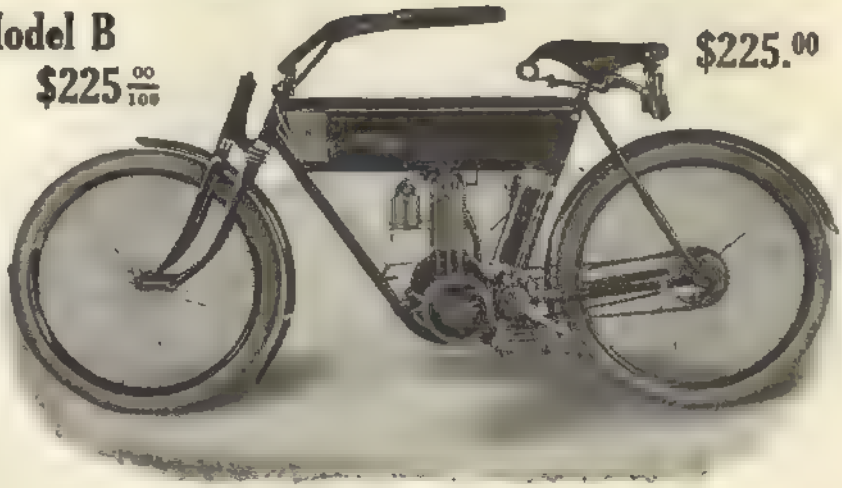
That Cannot be Hidden Under a Bushel

Model A $185.00



Model B $225.00

$225 00/100



THE

LIGHT MFG. & FOUNDRY CO.

MOTORCYCLE DEPT.

FOURTH and HANOVER ST. - POTTSTOWN, PA.

QUALITY

THE LIGHT

MOTOCYCLES

Critics Say we Have the Best—Quality, Up-to-date Features and Prices are the Great Factors.

$185.00 to $300.00. Magneto Extra.

:: :: *Write for Full Particulars* :: ::

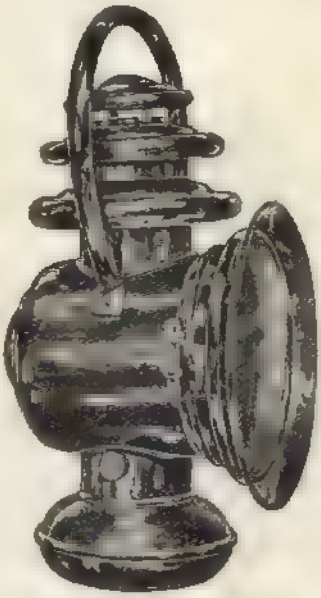
THE LIGHT MFG. & FOUNDRY CO.

Motorcycle Department

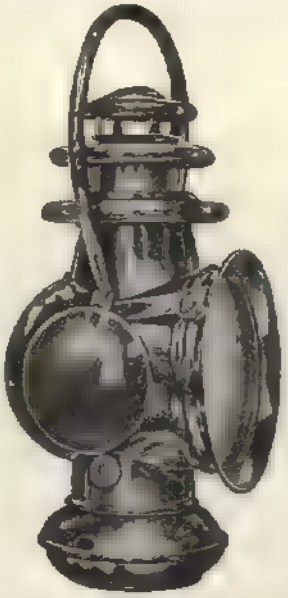
4th AND HANOVER STREETS, :: POTTSTOWN, PENNA.

HERE IS THE CORRECT 1908 LAMP EQUIPMENT

GUARANTEED

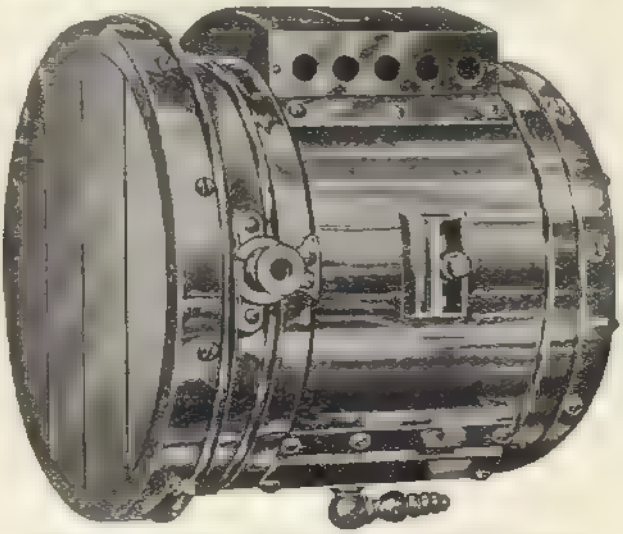


Large size side oil lamp. Heavy gauge brass, silver reflectors, perfect draught, will stay lit.



Handsome tall oil lamp, heavy gauge seamless brass bodies. Fine semaphore glass, combination prop for round or flat bracket; will stay lit.

Very handsome square lamp, heavy gauge brass, silver reflector, perfect draught, will stay lit.



$\frac{1}{16}$" brass body, reinforced with extra bands ¼" thick. Full size Bausch & Lomb Mirror, Adjustable Focus

Double Generator, Heavy Gauge brass, Automatic cut off Valve; water jacket cast base

If you select any of these lamps you will make no mistake, because they are the acme of construction and finish.

IN PRICE, QUALITY, and PROMPT DELIVERY

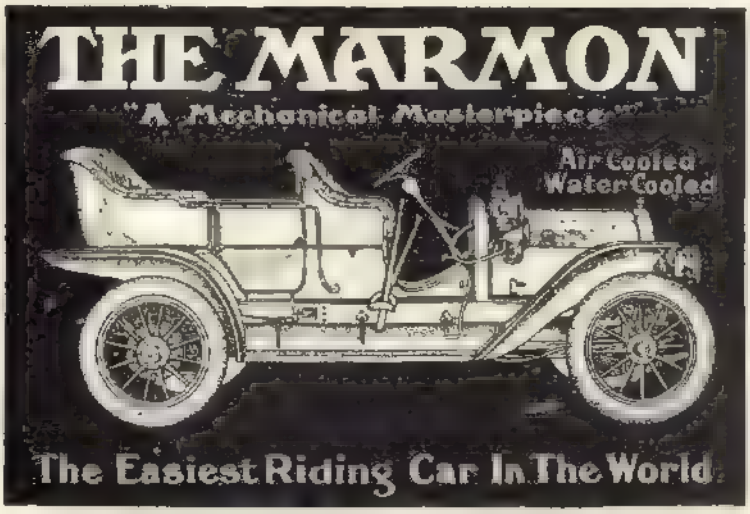
we can meet all competition.

Send for our 1908 booklet giving free particulars about our gas and oil lamps.

Manhattan Screw and Stamping Works, New York City

THE MARMON

"A Mechanical Masterpiece"



The Easiest Riding Car In The World

Model H, Touring Car, 40-45 H. P.,	-	$3500
Model H, Roadster, 40-45 H. P.,	-	$3500
Model G, Touring Car, 35 40 H. P.,	-	$3000

For Catalog, address Dept. 15

Nordyke & Marmon Co., (Established 1851)
Indianapolis, Ind.

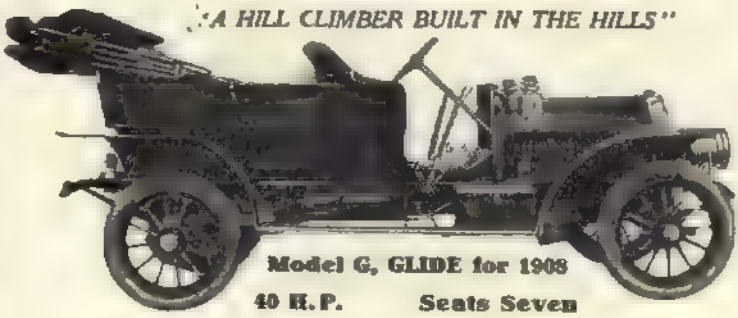
To First-Class Dealers
The 1908 Marmon will appeal as an unusually interesting proposition. Write now about your territory.

The Glide Automobile

1000 inches Braking Surface make

"THE GLIDE" the Car of Control

"A HILL CLIMBER BUILT IN THE HILLS"



Model G, GLIDE for 1908
40 H.P. Seats Seven

Nearly three times as much braking surface as is even claimed by any other car. This is only one of the reasons why Model G. GLIDE for 1908 is the most popular car on the market, and it is the most popular. Another is its noiselessness.

When You Run a GLIDE You Hear No Noise

Save the Obedient Whisper of the Motor

For this fact it costs less to sell a GLIDE than any other car. We will show you the figures. The big demand makes it the paying car for dealers. More sales—less trouble and expense. *Write for handsomely illustrated catalog.*

The BARTHOLOMEW COMPANY, 210 Glide St., Peoria, Ill.

Members American Motor Car Manufacturers' Association, New York.

AMERICAN MORS

A CAR BUILT FOR PERMANENCE

The engine, chassis and every vital part of the American Mors is an exact duplicate of its famous French licenser.

Built by the largest builders of street cars in the world and backed by this unusual combination of French and American brains, the American Mors is conceded to be a triumph of structural solidity and a perfectly balanced car.

GUARANTEED FOR ONE YEAR

American Mors Touring Cars—Three Types

14-18 H. P., $3,000 24-32 H. P., $5,000 40-52 H. P., $6,000

All Bodies of the Most Perfect Designs—Complete Equipment

Send for our Catalog. Address Dept. D

THE ST. LOUIS CAR COMPANY, Automobile Department, St. Louis, Mo.

NEW YORK: 1706-1718 Broadway, cor. 54th Street

Licensed by the Société Anonyme d'Electricite et d'Automobiles, "MORS," Paris, France

BUILT BY THE

LARGEST BUILDERS OF STREET CARS IN THE WORLD

For City or Suburban Use

BABCOCK ELECTRICS

excel all other automobiles. Simplicity of construction and operation makes them especially adapted for use by men and women for business, shopping, calling or pleasure.

¶ The Interchangeable Coupe and Victoria bodies make

Model 6 Victoria, Price $1700

BABCOCK ELECTRICS Serviceable in all Seasons—Affording **Comfort and Ease**

"When you build right it is right and works right" BABCOCK

FIVE MODELS **WRITE FOR CATALOGUE**

BABCOCK ELECTRIC CARRIAGE CO., BUILDERS, 238 West Utica St., Buffalo, N. Y.

New York Branch, 1591 Broadway, cor 48th St.

The Easiest Riding Car in the World

THE MARMON

"A Mechanical Masterpiece"

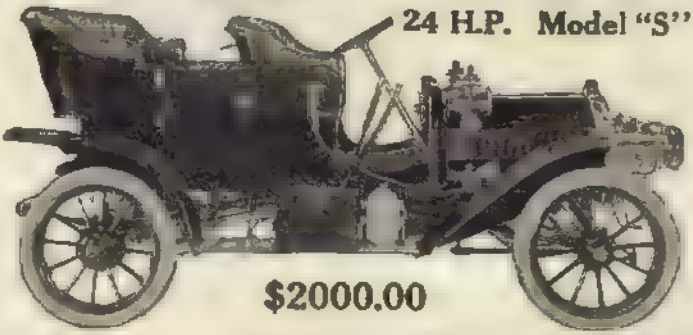
It's a pleasure to demonstrate this car. There's so much to talk about---so much strong, convincing argument. It's ease of motion alone often suffices to clinch a quick sale, particularly where a woman is interested. Write us about your territory.

Model H, Touring Car, 40-45 H.P., $3500
Model H, Roadster, 40-45 H. P., $3500
Model G, Touring Car, 35-40 H. P.,$3000

For Catalog, Address Dept. 15
NORDYKE & MARMON CO.
Est 1851. Indianapolis, Ind.

'08 **Moline** '08

24 H.P. Model "S"



$2000.00

POWERFUL NOISELESS DURABLE

The Big "3" in Automobile Manufacture

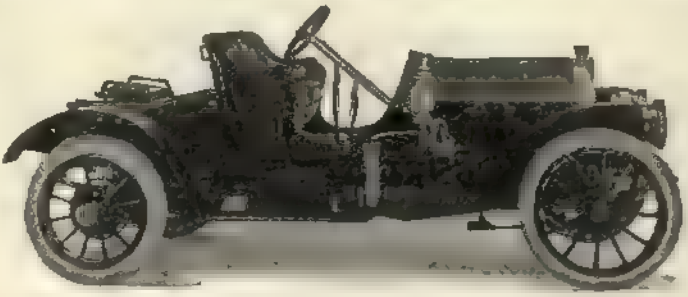
Model "A" 35 H. P., $2500.00 :: :: Model "H" 20 H. P., $1250.00
CATALOGUE ON REQUEST

MOLINE AUTOMOBILE CO., 555 Keokuk Ave., East Moline, Ill.
Mem. Amer Motor Car Mfgrs. Asso.

TYPE "C" 50

PENNSYLVANIA

Roadster, $2800



A DEMONSTRATION will convince the most particular prospect that the PENNSYLVANIA is all we claim. Catalogue upon request.

IN ITS ENTIRE CONSTRUCTION FAULTLESS. IN ITS APPOINTMENTS MOST COMPLETE

PENNSYLVANIA AUTO MOTOR CO. - Bryn Mawr, Pa.

GROUT CARS

FOR 1908

Touring Car, Complete with Top, $2500

Tourabout, 4-Passenger - 2400

¶ Agents who desire to represent a factory, willing to give EVERY POSSIBLE AID in selling are asked to communicate with us.

GROUT BROS. AUTOMOBILE CO. - - Orange, Mass.

Established 1896

We built the first factory in this country for the manufacture of motor cars

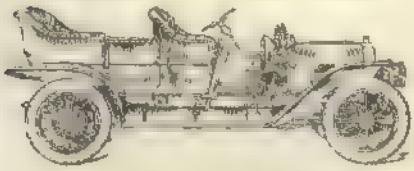
IT'S a pleasure to demonstrate The Marmon. There's so much to talk about—so much strong, convincing argument.

Its ease of motion, once shown, arouses a customer's interest. Women especially, value this feature because it enables them to tour without the usual exhaustion.

Give a man a ride in The Marmon and he'll pay close attention while you explain its patented features.

Suppose you write about the agency in your city.

THE
MARMON
Air Cooled *Water-Cooled*

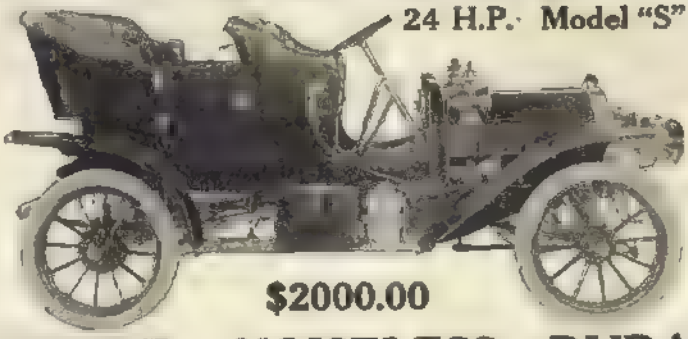


The Easiest Riding Car in The World

Model H Touring Car, 40-45 H. P., $3500
Model H Roadster, 40-45 H. P., $3500
Model G Touring Car, 35-40 H. P., $3000
For Catalog, Address Dept. 15.
Nordyke & Marmon Co.
Established 1851 Indianapolis, Ind.

'08 Moline '08

24 H.P. Model "S"



$2000.00

POWERFUL NOISELESS DURABLE
The Big "3" in Automobile Manufacture

Model "A" 35 H. P., $2500.00 :: :: Model "H", 20 H. P., $1250.00
CATALOGUE ON REQUEST
MOLINE AUTOMOBILE CO., 555 Keokuk Ave., East Moline, Ill.
Mem. Amer. Motor Car Mfgrs. Asso.

Garford

Thousands of skilled engineers and brilliant inventors have contributed to the ideas required to produce the present "TYPE" of Automobiles. We have contributed our share of these ideas. We do not claim credit for the "TYPE," but we do claim to be the first to recognize its existence and the desirability of adhering to it.

The Garford is intended to be, and we believe, is a well executed realization of the generally accepted "TYPE" of automobile representing the best judgment of those qualified to judge.

ADDRESS

Eastern Inquiries
Garford Motor Car Co. of New York
1540 Broadway, New York City

Western Inquiries
Garford Motor Car Co. of Cleveland
1372 East 12th St., Cleveland

GROUT CARS
FOR 1908

Touring Car, Complete with Top, $2500
Tourabout, 4-Passenger - 2400

¶ Agents who desire to represent a factory, willing to give EVERY POSSIBLE AID in selling are asked to communicate with us.

GROUT BROS. AUTOMOBILE CO. - - Orange, Mass.

Established 1894

We built the first factory in this country for the manufacture of motor cars

GAS ENGINE MANUAL How to Run an Auto

¶ This volume just published gives the latest and most helpful information respecting the construction, care and management of **Gas Gasoline** and **Oil Engines, Marine Motors** and **Automobile Engines,** including chapters on Producer Gas Plants and the Alcohol motor.

¶ The book is a practical educator from cover to cover and is worth many times the price to anyone using a gas engine of any type or size. Contains [illegible] pages, 27 chapters, 156 diagrams, size 5½x8½ inches, weighs 2 pounds, handsomely bound, and in every way a fine volume.

SPECIAL OFFER

¶ *The only way the practical merit of this* MANUAL *can be given, is by an examination of the book itself, which we will submit to the readers of* **Auto Trade Journal,** *free for examination, to be paid for or returned after looking it over.*

¶ Upon receipt of the following agreement (which can be either cut out or copied), the book will be immediately forwarded.

No money in advance required, sign and return

Theo Audel & Co., 63 Fifth Ave., New York

Kindly mail me copy of Audel's Gas Engine Manual, and, if found satisfactory, I will immediately remit you $2.00, or return the book to you.

NAME .....

ADDRESS .....

Are you interested in Automobiles?

If you are, an early purchase of "HOMANS' SELF-PROPELLED VEHICLES" will give a good [illegible] work [illegible] the [illegible] on the proper management [illegible] care, expert [illegible] practical [illegible] of [illegible] and [illegible] in [illegible] the plain way, [illegible] with [illegible] diagrams and [illegible] drawings.

[illegible] a lesson of subject [illegible] treated by [illegible] leaders of the [illegible] behind [illegible] and [illegible] [illegible] to the most [illegible] automobilist. [illegible] the same time it is so [illegible] the expert [illegible] from its [illegible]

[illegible] will be [illegible] in the [illegible] [illegible] dollars [illegible] will [illegible] [illegible] be paid for after [illegible]

[illegible] 8, over [illegible] and [illegible] printed [illegible] paper, [illegible] bound in good binding [illegible] high [illegible] endorsed.

No money in advance required, sign and return

Theo. Audel & Co., 65 Fifth Ave., N. Y.

Kindly mail me [illegible] copy of [illegible] and if found satisfactory I will immediately remit [illegible] or return book to you.

Name .....

Address .....

Date .....

JUST ISSUED

1908 Catalog

WRITE FOR IT

The Growing House

MANUFACTURERS, DISTRIBUTORS AND JOBBERS OF

Automobile Parts, Supplies and Accessories

NEUSTADT AUTOMOBILE & SUPPLY CO.

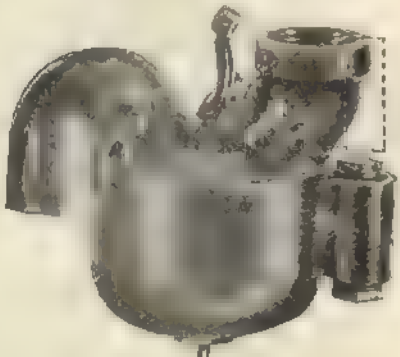
3957 Olive Street, St. Louis, Mo.

The MARVEL

is unexcelled in

EFFICIENCY, ECONOMY and RELIABILITY

and has justly earned its title.



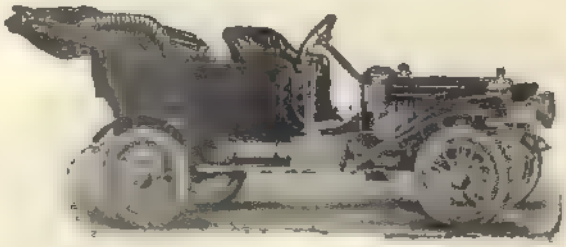
"CARBURETER KING"

Simple in construction and adjustment, absolutely guaranteed, low in price and your money back if not satisfactory.

Write today for Catalog.

MARVEL MANUFACTURING CO.

410 South Meridian St., INDIANAPOLIS, IND.



THE $2000

THE STANDARD OF AMERICAN AUTOMOBILE VALUE

Mitchell

Perhaps you've noticed that most cars cost more than the Mitchell.

Did you ever notice that they were any better in finish or in material—or any better in **performance**—on the road?

Ride in a $2000 Mitchell and **see.**

Have any Mitchell agent "show you" a Mitchell.

Look it over—go out into the country and test it on the toughest hill you know of—through some particularly bad stretch of sandy or muddy road. Notice your power—notice speed—notice the sweet running motor the tranquil action of all moving parts—ease of control—notice general efficiency, Mr. Prospective Owner.

Then if you can see how you'll get two or three thousand dollars more automobile value out of any other car—**buy** the other car, we won't say a word.

But you **won't find** more value in any other car.

Present day automobile value is **standardized in** the **Mitchell at $2000.**

A demonstration will prove this to **you.**

You are under no **obligation** to buy when you ask for a demonstration

If you are considering the purchase of a car we want you to **know** the Mitchell, and we want **to show** you what you get in a Mitchell at $2000 and that you can't get any **more** in **any other** car, **regardless** of the price.

Call up the Mitchell agent.

The Right Price for the Right Car

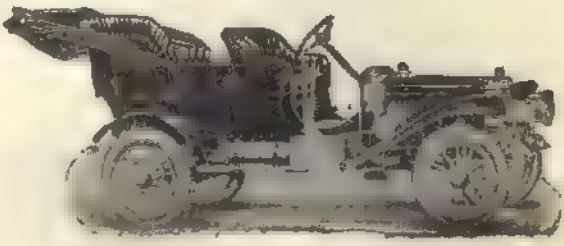
$2000

WRITE US FOR CATALOGUE No. 18

MITCHELL MOTOR CAR CO.

251 Mitchell Street, Racine, Wis.

Member American Motor Car Mfr's Ass'n



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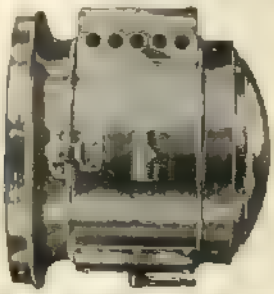
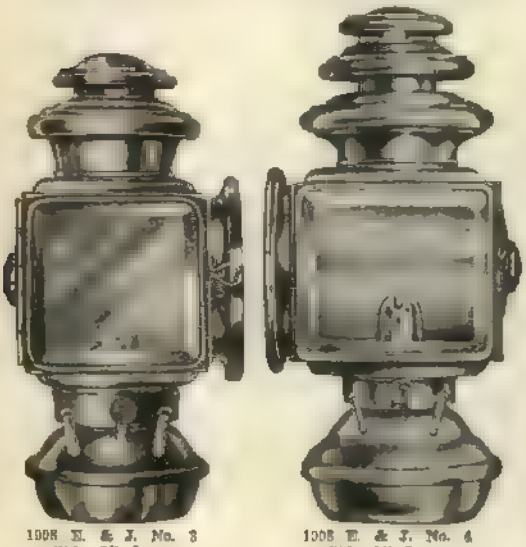
1908 E. & J. Lamps

Among the new designs shown in the 1908 catalog of the Edmunds and Jones Mfg. Co., of Detroit, Mich., is their No. 166 headlight, here illustrated. This headlight is 7½ in. across the flange, 7¼ in. long, 7½ in. high and is fitted with a 6-inch mirror. The price is $15. The same style lamp is furnished in four other sizes with



1908 E. & J. Model 166 Headlight

6, 7, 8 and 9⅝-inch mirrors respectively, the prices being $17.50, $20, $25 and $30 These headlights are furnished with sectional glasses so that in case of an accident to the mirror lens or front glass it is easily removed. They also furnish this style of headlight with one-piece plate glass at a lower price. In the line of side oil lamps the Edmund & Jones Company are offering two new designs, one for medium weight touring cars and limousines

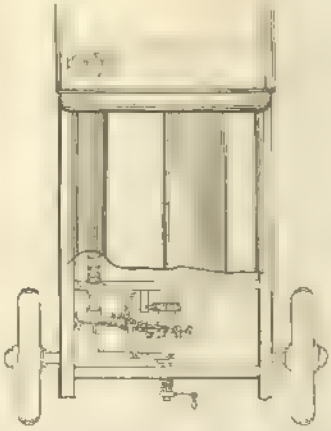


1908 E. & J. No. 3 Side Oil Lamp. 1908 E. & J. No. 4 Side Oil Lamp

and the other for runabout and motor buggy cars. Model 4 side oil lamp is made in one size only, 12 inches high, with a 4⅝ in. by 4⅝ in. body. It lists at $8 00. Model No. 3, which is made expressly for runabouts and motor buggies, is 10¼ inches high, with a 4x4-inch body, and lists at $6.00. This model is also made with square body, known as Model No. 3-A, and listing at $5 50.

The Adams Engine Starter

A new device for starting gasoline automobile engines was recently placed on the market by the Adams Motor Car Starter Co., 86 Bowen Ave., Chicago, Ill. This device is arranged so that the operator of the car can start the engine from the seat by turning a small hand wheel, which is shown in the accompanying illustration. Before turning the wheel it is prest downward and by a system of levers the starting handle is thrown into connection so that by turning the wheel a sprocket on the other end of the column to which the wheel is attached is revolved, in turn re-

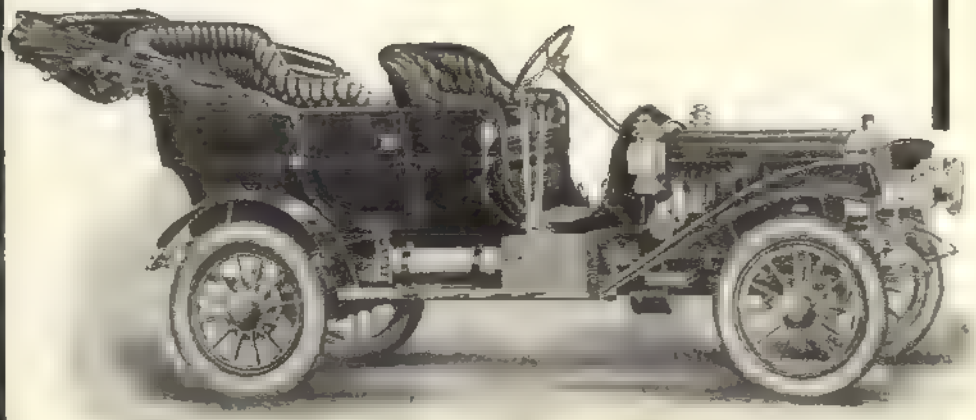


The Adams Engine Starter.

volving another sprocket on a small shaft which connects with the engine shaft by a ratchet and dog arrangement. Should the engine back-fire, the connection is broken, and no harm can come to the person operating the starter. The usual starting handle can be used if desired in the regular way, but cannot kick back and thus do injury to the operator, as the connection is broken as soon as the engine back-fires. The Adams starter has few parts, and these are simple, and it is applicable in any make of car.

The Winton $2,500 contest for chauffeurs closes July 1. Sixteen-Six drivers may enter any time previous to that date, the only requirement being a minimum of 3,000 miles traveled prior to the close of the competition.

A Franklin 28 H. P. motor car recently made a 440-hour non-stop run at Cincinnati, which included road running every day and idle running in the garage at night. Daily runs were made of from 250 to 300 miles each. On three successive days the car was driven to Columbus and return via Dayton and Springfield, a distance of over 250 miles. Three thousand, three hundred and twelve miles were run on the road, and an average of 25 gallons of gasoline and 2¼ gallons of oil were used per day.



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Ride in a $2000 Mitchell and **see.**

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The Right Price for the Right Car

$2000

WRITE US FOR CATALOGUE No. 18

MITCHELL MOTOR CAR CO.

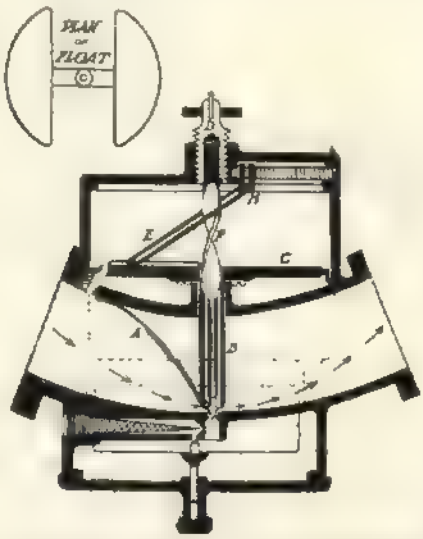
248 MITCHELL STREET :: RACINE, WIS.

Member American Motor Car Mfr's Ass'n

The "Duryea" Carburetor

The Duryea carburetor is the product of Chas. E. Duryea, Reading, Penna., and embodies some very unique features of carburetor construction. It is of the automatic, float feed type with the gasoline inlet located in the center of the carburetor.

The accompanying cut illustrates the principal of operation employed in this carburetor. In the full sized air passage is a gate A hinged to the hollow rod B of the piston C. The suction of the engine lifts the piston C and opens the gate A, thereby varying the air supply as needed. Above the piston or diaphram C is a radius link E, thru which the spiral portion of the gasoline needle F passes. As the piston C rises this link E turns the spiral F in its threads in D and adjusts the gasoline in proportion to the air then passing. The action of the radial link E can be



The "Duryea" Carburetor. A, is a hinged gate; B hollow rod, C, piston D, gasoline needle adjusting screw, E, slotted link F, spiral portion of the gasoline needle.

adjusted and made exactly right by adjusting the position of the pivoted end of E carried by the holder H so that the working point of E makes either a long arc with much needle movement or a short arc with little needle movement as the piston C rises. The original adjustment for starting is secured by turning B till perfect mixture, slowest speeds and easiest starts are obtained. The forward end of the carburetor is provided with a gage screen to exclude dirt, and at the opposite end the throttle (not shown) is fitted. On account of the carburetor depending upon suction for its automatic operation, the quality of the mixture will be the same, regardless of the action of the throttle or the size of the engine. The carburetor can be placed in any position as none of the working parts are exposed to mud. It may be used without a heating chamber if it is supplied with warm air, or if the quality of the gasoline is such that heat is not needed; but a heating chamber can be furnished which is attached immediately behind the throttle. The list price of the carburetor is $75.

The Latest "Buckeye" Jack

The Buckeye Jack Manufacturing Co., Louisville, O., has recently placed on the market a new model of the Buckeye automobile jack shown herewith.

The main improvement made in the new model is the elimination of the eccentric on the side which controls the up-

The 1908 "Buckeye" Jack.

ward and downward movement of the jack. This movement is now controlled by a small lever at the side of the socket lever, which makes the operation of the jack more convenient than heretofore, and allows operation of jack by the foot.

"Viscos" Automobile Lubricants

The National Oil & Supply Co., First and Essex streets Harrison, N. J., are putting out a complete line of lubricants especially adapted for automobiles and hydrocarbon engines.

For all places where grease can be used this concern offers its Viscos grease which is made in three consistencies, light medium and heavy. It is put up in barrels, half barrels, 100 pound kegs, 50, 25, 10 and 1 pound cans. They also manufacture a graphite grease which is put up in the same size packages as the Viscos grease. For transmission gears this concern is putting up a Transmission Gear Compound which is sold in the same size packages as their other greases.

Viscos oil is especially adapted for cylinder lubrication. It is made in five grades: Extra light, light, medium, heavy and extra heavy, and is guaranteed not to carbonize. It is put up in barrels, half barrels, 10, 5, and 1 gallons cans.

Twenty-six representatives of the Excelsior Supply Company, attended the banquet given by that concern at the Sherman house, Chicago, on Sunday afternoon, December 1.

F. A. BROWNELL MOTOR COMPANY

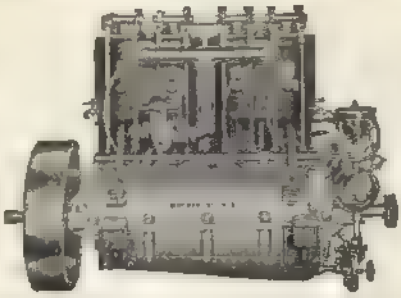
Powerful FB Reliable

MOTOR OF ACKNOWLEDGED SUPERIORITY

Embodies the most scientific and approved principles of internal combustion engine construction.

Motors for Automobile Marine, Tractor, Suburban Car and other purposes.

We also manufacture Transmissions Light and heavy, for Automobiles and Trucks.



Our CARBURETOR increases efficiency of six cylinder Motors to surprising extent. Let us prove it to you.

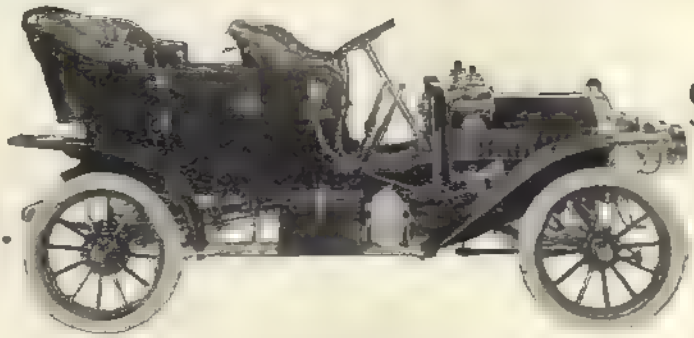
Our new circulating water and oil PUMP is so simple, so powerful, so reliable, that—Well ask us to tell you ALL about it. A postal—a catalogue

INTAKE SIDE, 4-CYL., 30-34 H. P. MOTOR.

F. A. BROWNELL MOTOR COMPANY,
Successors to Brownell-Trebert Company
634-666 Lexington Ave., Rochester, N. Y.

1908 MOLINE 1908

24 H.P.



$2000

MODEL "S"

An Ideal, Light Touring Car for Family Use

For cuts and description of Models "S", "A" and "H" see our 1908 Catalog.

Moline Automobile Co., East Moline, Ill.

Member of Amer. Motor Car Mfgrs. Asso.

MOON MOTOR CAR CO.

JOSEPH W. MOON, President

WE were CONVINCED that we were right when we thought the time had come when the American public would demand a home built motor car which would equal in every respect the highest priced Imported Cars. And that our Louis P. Mooers was right in designing an automobile combining their best features and at the same time moderate in first cost and future tire and up-keep expense.

First we convinced BOSTON we were right when we established their track record for a standard touring car.

NEW YORK was convinced when our car was selected to be used in the race from New York to Paris—"around the world route."

CHICAGO had to be convinced so we won their big ALGONQUIN HILL CLIMBING CONTEST against a large field of all priced motor cars.

THE PACIFIC COAST was convinced when we won the LOS ANGELES ECONOMY CONTEST—taking five passengers over 199 miles of mountain roads on 10½ gallons of gasoline.

And finally the HOL-TAN COMPANY of New York became convinced when they selected our factory product to replace the FIAT and to be sold to their fashionable clientele in New York, Boston and Philadelphia—precisely the same customers to whom they have been selling their high priced imported motor cars.

And now Mr. DEALER we can convince you that the MOON cars would be the most profitable line you can handle in your City, if you will simply write for our catalogue and let us explain our plans to you personally.

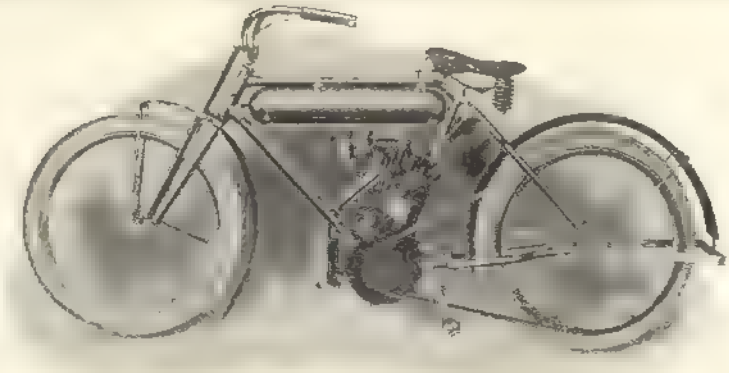
ROADSTER, $3000 5 PASSENGER, $3000 7 PASSENGER, $3750

MOON MOTOR CAR CO.

4400 MAIN STREET, ST. LOUIS

ANTICIPATE ALL DELIVERIES
Rush Shipments for Thomas Flyers
Mosler Spit Fire PLUGS
LEAD THE WORLD
in the New York—Paris Race

1908 THOMAS EQUIPMENT
1908 THOMAS EQUIPMENT
All Leading Manufacturers Use Them
A. R. MOSLER & Co., 163 W. 29th Street, New York



M. M. FOR 1908

THE BEST MOTOR CYCLE BUILT. Not what we say, but what the Riders say. YOU WOULD SAY SO, TOO, if you could only ride the M. M. Special for 1908, with its 3½ H. P. smooth running engine, equipped with 26" wheels, nickeled rims, special constructed frame dropped at seat post joint to admit of a perfect seat position, at the same time giving you a longer wheel base, thereby a better balanced Machine. Add to this an ideal Motor Cycle front spring fork, so perfectly constructed and adjusted as to absorb all road jars, while the engine is so placed in frame as to get the best possible results with the least possible vibration, and you get some idea of the splendid M. M. for 1908.

Also equipped with the new M. M. Motor Cycle Stand, newly designed cylinder and cylinder head. Also new priming device, new chain idler device, together with long rear adjusting jaws admitting of the taking up of any and all slack that might appear in the belt, thereby adding efficiency to the belt transmission.

These are only a few of the new features on the M. M. for 1908.

Write for details and our interesting proposition.

"Agents Get Busy."

AMERICAN MOTOR CO.

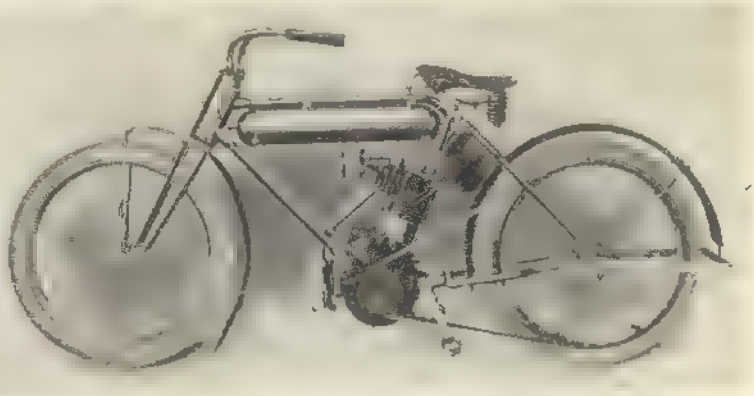
715 CENTRE ST., BROCKTON, MASS.

19—M. M.—08

We are now making Spring deliveries and booking orders for May 1st deliveries. If you have not already made your selection and placed your order for your Motorcycle, you have yet just time to get your order in to participate in these early deliveries, and if you are honestly in earnest about getting the best Motorcycle built your final decision will be an M. M. Special.

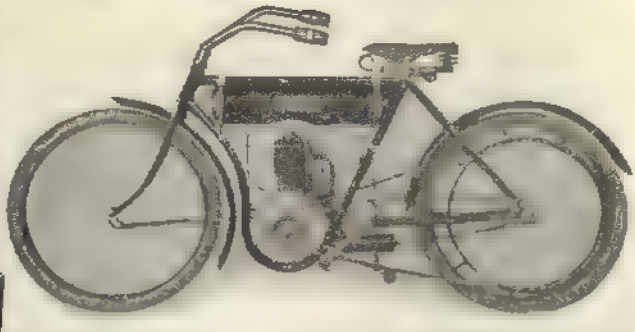
IT HAS MORE NEW FEATURES THAN ALL OTHER MODELS COMBINED 26" wheels nickel rims 3½ H. P. engine with its newly designed cylinder and head special constructed frame patent Motorcycle Stand, the splendid new M. M. triple plate spring forks, priming device on tank for starting Machine easily, new rear wheel adjustment the new M. M. flexible handle bar grips. Dozens of other features described and shown in our catalog.

For details and agency proposition write



American Motor Co.
715 Centre St.
BROCKTON, MASS.

Of Course You Are Anxious To Give Your Customers The Best Motorcycle They Can Get For The Money. Your Success As A Dealer Hinges On the Satisfaction Given By The Machine You Sell.



There is no sense in selling a man a motorcycle that makes him a continual kicker, and that makes him knock you instead of boosting you, is there?

We would like to have you investigate

THE 1908 MERKEL

It will stand all the investigation you want to give it, and will make good.

The Merkel Spring Frame and extra long Wheel Base—the Double Grip Control and the 3 H. P. Ball Bearing Motor (with Magneto Ignition if desired)—these are all points to which we particularly want to call your attention as Merkel features.

Write for the Merkel Booklet. Well illustrated, it is full of live motorcycle facts in which you as a dealer will be interested. It is free.

If we are not already represented in your territory, perhaps you can become our representative. Send for our proposition.

Price, $210.00 With Spring Fork, $225.00. With Magneto Ignition, $40 additional.

MERKEL MOTOR CO. Representatives **1098 26th Ave., Milwaukee, Wis.**

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[illegible] John Fielger [illegible] Bushwick Ave. Brooklyn N. Y.

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The

Thor

Motorcycle

You will know it when you see it.

You will appreciate it when you ride it.

There are models to suit all:

SINGLE CYLINDER, DOUBLE CYLINDER and MAGNETO MODELS

Quality Predominates—Finish Excels

Dealers should remember that variety and superiority stimulate trade. If interested in Motorcycles write us today.

Aurora Automatic Machinery Co. = = Aurora, Ill.

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Try them; you will find they are the Best Easiest to Handle "Wear Longest"

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Stop your Cussin' and get a Neverout

TRADE MARK

¶ The Neverout Double Focus Searchlight.

¶ The most powerful searchlight ever produced.

¶ Twice as powerful as the old-fashioned kind.

¶ The Neverout Patent Invertible System of Gas Production.

¶ Produces the strongest and best white, steady light.

¶ In a class by itself.

The Neverout Double Focus Searchlight can be attached to any ordinary gas tank or producer, but to get the best results, use the Neverout Invertible Gas Producer.

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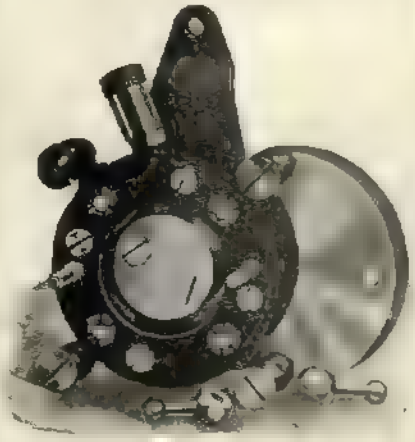
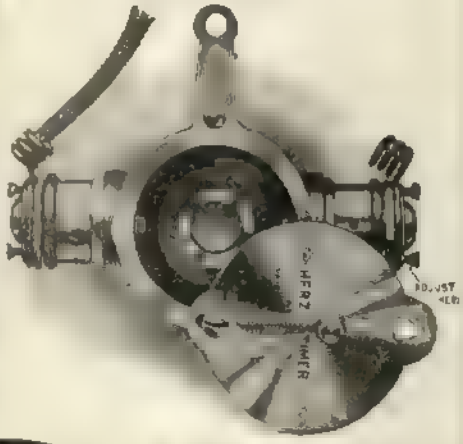
IT'S A CRITERION: ALL GOOD DEALERS SELL GOOD MATERIAL--HERZ'S

HERZ TIMERS





OVER 100,000 IN CONSTANT USE HERE AND IN EUROPE.

IT'S TOOLSTEEL VERSUS TOOLSTEEL

80% SAVING ON GASOLINE AND CURRENT AND 99% LESS OF IGNITION TROUBLE. BEWARE OF IMITATIONS.

20 DIFFERENT STYLES TO SELECT FROM, OR YOU MAY SAFELY LEAVE SELECTION TO US JUST STATE MAKE OF YOUR MOTOR WHEN ORDERING —DIRECTLY OR FROM YOUR NEXT DEALER.

HERZ ON AUTOMOBILE MATERIAL MEANS WITHOUT EXCEPTION THE BEST IN THE WORLD

HERZ DISTRIBUTOR

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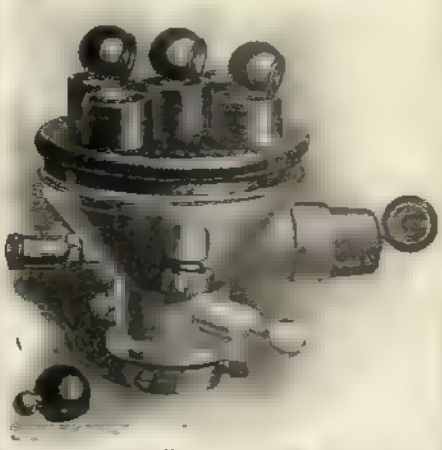
THE IDEAL OUTFIT FOR DOUBLE IGNITION ABSOLUTELY DEPENDABLE. BALL BEARINGS, SPRING BALL CONNECTIONS. DISASSEMBLED IN A SECOND. TOOLMAKERS WORK THROUGHOUT MADE OF THE BEST RUBBER AND BRONZE. NO COMPOSITION USED.

IF WE WERE OFFERED A MILLION DOLLARS TO MAKE A BETTER PLUG THAN THE BOUGIE MERCEDES WE COULD NOT DO IT — AND WE HAVE BEEN MAKING PLUGS FOR 15 YEARS. DISCARD THOSE MANY THINGS WITH FANCY NAMES AND A LOT OF ADVERTISING BUT NO VALUE BEHIND THEM. THIS IS THE BEST VALUE IN SPARK PLUGS EVER OFFERED.



WRITE FOR OUR "IGNITION BOOK" IT'S FREE.

HERZ PLUG

$1.50 POSTPAID

GUARANTEED FOR ONE YEAR. ABSOLUTELY PROOF AGAINST OIL AND SOOT. ABSOLUTELY SELF-CLEANING.

DOUBLE STONE NO PORCELAIN.

THIS STONE WILL NEVER CRACK—PORCELAIN DOES

SEE OUR ADV. ON PAGE 287

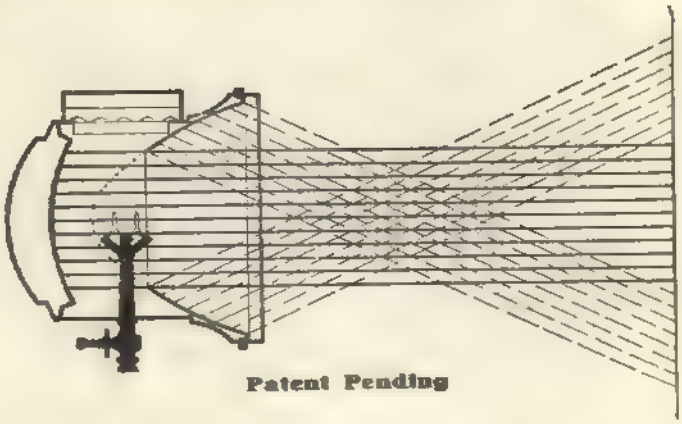
HERZ & CO., CIVIL ENGINEERS, 203 LAFAYETTE STREET, NEW YORK

The Neverout

TRADE MARK

Double Focus

Searchlight



¶ The most powerful Auto Searchlight ever Produced.

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Member Association of Licensed Automobile Manufacturers.

"Silent as the stars"

The Practical Family Car

Perfected by five years' experience manufacturing this one model.

Built to carry the family—strong, enduring, reliable—and supremely easy riding, because of its four full elliptic springs and perfectly balanced engine.

Has the simplest control and mechanism of any automobile, and will give you all the real enjoyment of motoring and long-continued, satisfactory service with the assurance of little expense in maintenance. You can drive and care for it yourself. In a word, it's the practical family car.

It's a pleasure and not a crucifying luxury to own a Northern.

Let us send you catalog giving full details.

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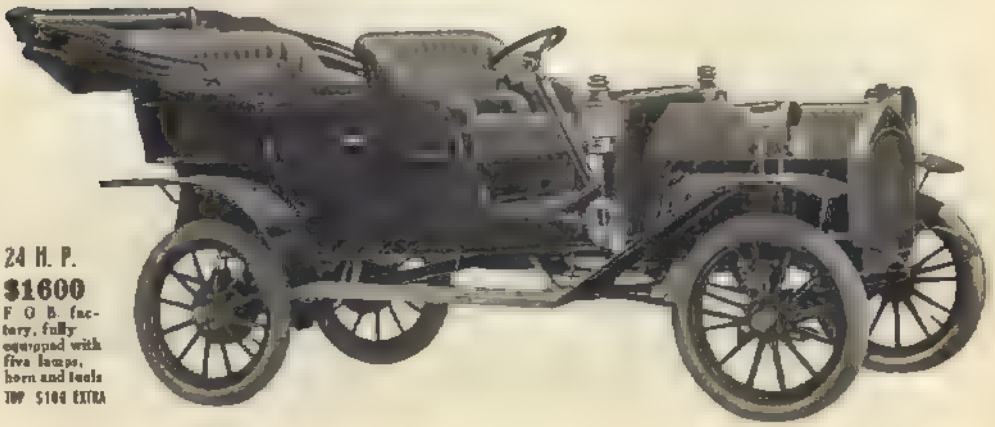

24 H. P.
$1600
F. O. B. factory, fully equipped with five lamps, horn and tools
TOP $100 EXTRA

NORTHERN
MOTOR CAR CO., DETROIT

Member Association of Licensed Automobile Manufacturers.

"Silent as the stars"

The Practical Family Car

Perfected by five years' experience manufacturing this one model.

Built to carry the family—strong, enduring, reliable—and supremely easy riding, because of its four full elliptic springs and perfectly balanced engine.

Has the simplest control and mechanism of any automobile, and will give you all the real enjoyment of motoring and long-continued, satisfactory service—with the assurance of little expense in maintenance. You can drive and care for it yourself. In a word, it's the practical family car.

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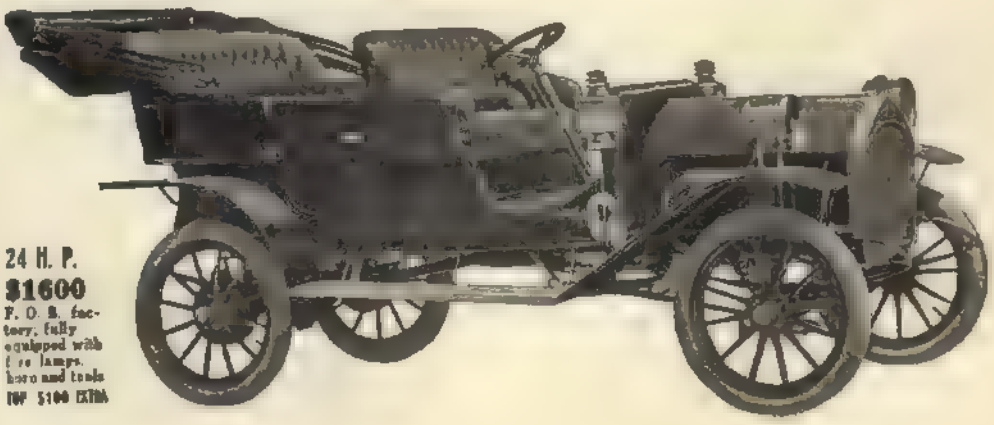

24 H. P.
$1600
F. O. B. factory, fully equipped with five lamps, horn and tools
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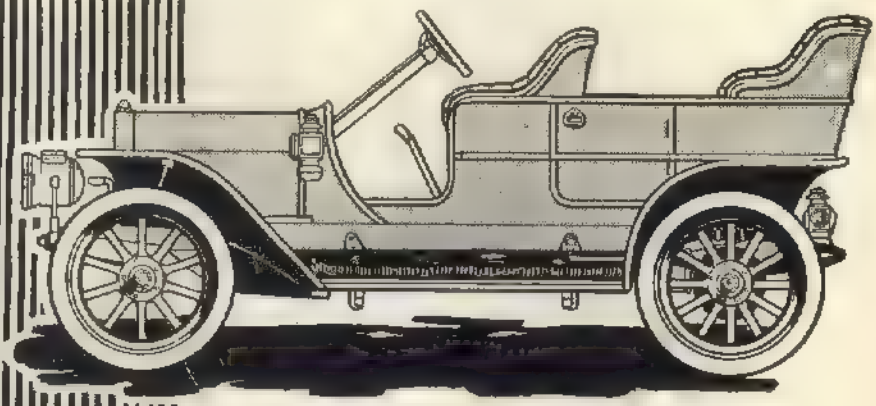


Model B Touring Car, Seating Five, 20 H. P., Weight, 1600 lbs.; Price, $1,400

Oakland

An Appeal to Common Sense

The automobile manufacturer of today is down to "brass tacks"—he's up against real competition.

Hitherto he has been very much in the position of the man who served ice cream at a Sunday school picnic—the demand exceeded the supply.

The result was that the cost of manufacture didn't worry him very much. It was a case of get the cars out, no matter what they cost.

But this year the wise manufacturer is choosing his market. The field for the light runabout and the heavy, high-powered luxurious touring car is already in the hands of three or four manufacturers.

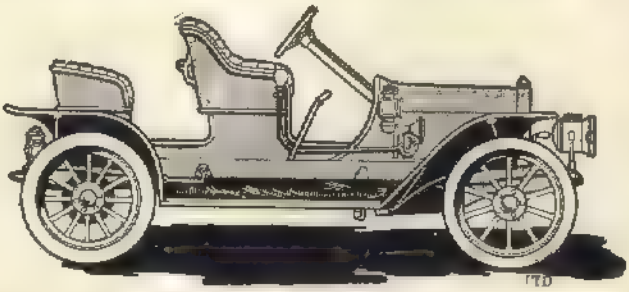
But how about the field for the the medium-priced car—a sensible, serviceable every day automobile—one that doesn't cost a small fortune to buy or an average income to maintain?

The manufacturers of the Oakland have seen this opportunity, and the result is the Oakland car—in two models—roadster and touring car, light in weight, ample in power, and stylish and handsome in appearance.

The power equipment of the Oakland is our two-cylinder vertical motor, here for the first time successfully worked out, and brought to full efficiency, without vibration. The number of adjustments throughout the Oakland are less than half those in other cars of its class, thus insuring simplicity and economy.

We shall be pleased to correspond with those who are in the market for this type of car, or with agents who realize with us the wide possibilities of a car properly built on these lines.

Oakland Motor Car Co., Pontiac, Mich.

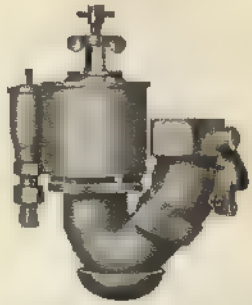


Model A Roadster, 20 H. P., Weight, 1500 lbs.; Price, $1,375

PACKARD MOTOR CAR COMPANY
DETROIT, MICHIGAN

Palmbla 'Syphon' Carburetor

1908 MODEL



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Stationary Hit and Miss, or Throttling Type; Four Cycle High Speed Motors, all Types, Two Cycle Two-Port; Two Cycle Three-Port; Convertible 2 or 4 Cycle

FIT ANY MOTOR. Gasoline Connection Changeable for 3 Points. 45 degree Flange Connection Permits of Top or Side Outlet.

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The way all the other wheels go

Indestructible Steel Wheels

are never out of true, cannot collapse

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Model T One Ton Truck

A truck equipped with a four cylinder air cooled 20 H. P. Motor, built for service and fitted to carry its load day in and day out under all conditions. For detailed description address

THE LOGAN CONSTRUCTION CO.

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Peugeot Chains—"Strongest in the World."

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Parsons' Manganese Bronze Axles

Stronger than steel. Thousands in use. None have ever broken.

The Wm. Cramp & Sons Ship and Engine Building Company

Philadelphia, Pa.

Motor Cars Better for Hauling Gas Tanks

The Prest-O-Lite Co. of Indianapolis, Ind., well known as the makers of the famous "Prest-O-Lite" comprest gas tanks, find it advantageous to use motor cars in place of horse drawn vehicles and they now have one Premier, 4-cylinder, gasoline car doing the work of four horses and two wagons previously used. The car has a carrying capacity of 1,500 pounds and makes a daily average mileage of 45 which includes about 25 short trips within a radius of four miles. They care for the car at their own garage and they pay the operator $80 per month. No separate account of lubricating oil and gasoline has been kept, hence no definite figures covering these items are available. Repairs have cost them $25 per month and they calculate depreciation of the car at $500 for the first year and $100 for each succeeding year

The expense of maintaining the horse service previously employed included the cost of caring for and feeding, $12 to $18 per month for each of the four horses, $3 per month for shoeing each horse and $45 per month for each of the two drivers. The depreciation of horse value was reckoned at 20 per cent per year and of the vehicles at 10 per cent per year.

"That there are not yet enough types of cars, particularly commercial vehicles, on the market, is every day more evident," said Mr. Harry Levey, a young business man of large interests, who has become identified with motor racing. "I am in the market for thirty-two light, gasoline delivery cars, capable of a carrying capacity of fifty-four cubic feet, but of not necessarily more than 200 pounds, besides the driver. The ideal car for my purpose would be a runabout of the buckboard type, costing about $300, and I could place as many more among business connections. I do not know of anything now built which fills these requirements, yet the thing is so simple that I could build it myself."

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The Crosby Company

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MADE IN SEVERAL STYLES OF HEAD

THE COMMERCIAL MOTORCAR CO.

INCORPORATED 1906

TIMES BUILDING - NEW YORK, N. Y.

We furnish Business Automobiles of all types and makes—machines exactly suited to any class of service.

We especially call attention to the SAFIR Motor Truck manufactured in Zurich, Switzerland. Descriptive circular and record of past performances mailed on request.

The Richest Field For The Agent

Rapid Commercial Cars

I wish every man who seeks auto-job les knew as I know the splend d opportunity just now fo as li g commercial motor cars

The ent r c ntry seems to be waking u, to the fact that money can be made, both in the carry ng of passengers as a business and in the de ivery of merchandise by motor wagons

The man who handles the Rapid motor wagons can get the cream of the business. We have specialized in this field, and our success has built up the largest business in commercial motor cars in the United States

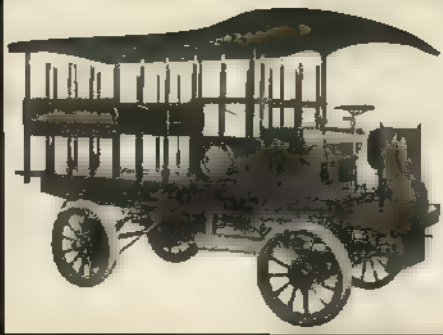
We make passenger cars de very wagons, trucks chassis, fire hose wagons, hospital ambulances and anything spec al desired If you have a garage and are able to represent us properly, write us today I have something of interest to tell you

B M. HENRY, Sales Manager

RAPID MOTOR VEHICLE CO., 125 Rapid St., Pontiac, Mich.

Seats 12 Passengers, $2500

One Ton Delivery $1700



THE MEISELBACH TRUCKS

One, Two and Three Tons

Friction Drive, Perfectly Supported. All Wheels on Timken Rollers. Powerful Brakes. The Simplest and Easiest Controlled Trucks yet shown. Thirty Horse Power.

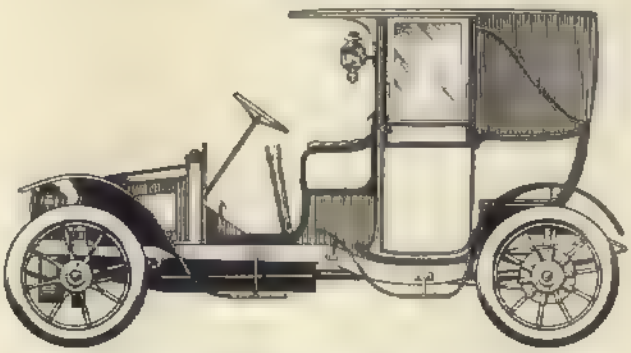
THE A. D. MEISELBACH MOTOR WAGON CO.

North Milwaukee, Wisconsin, U. S. A.

Agents wanted in unoccupied territory.

PALMER-SINGER

All Cars Sold by us are licensed under Selden Patent and are guaranteed for one year.



P.-S. Town and Country Car, 28-30 H. P., $3,000

Nickel steel is used throughout. Imported F. & S. ball bearings used exclusively. All models equipped with Bosch, high tension magnetos. Double and single drop frames of nickel steel. Drop forged I beam nickel steel front axle. Four speed selective type, sliding gear transmissions with direct drive on third speed.

Multiple disc clutches in all models. All brakes of expanding type and on rear wheels bolted to "bulge" spokes. All brakes equalized and enclosed in dust proof cases. Universal joints on all steering connections. All types shaft driven. All moving parts enclosed in dust proof cases.

The P.—S. Four-Forty Seven Passenger Touring Car. 4 Cylinders, 40-45 H.P. Price, Fully Equipped, $4,000

The P.—S. Six-Sixty Fast Touring Runabout. 6 Cylinders, 50 H. P. Price, Fully Equipped, $2,850

The P.—S. Gentlemen's Four-Thirty Skimabout. 4 Cylinders, 28-30 H. P. Price, Fully Equipped, $1,950

The P.-S. Gentlemen's Six-Fifty Racing Car. 6 Cylinders, 50 H. P. Price, Fully Equipped, $2,450

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1620-22-24 Broadway, New York GARAGE NOW OPEN **1321 Michigan Ave., Chicago**

Sole Distributors of The Famous Simplex, $5,750 Metropolitan Agents for the Selden Car, $2,000

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Every test has proven

Panhard Oil

to be the *one* cylinder oil that will not char the cylinders, spark plugs, exhaust passages and valves. This means more "life," more speed, more power, to your engine.

The very efficiency of your car depends on the *quality* of your lubricating oil. Use Panhard—the oil that will not char—the oil in the checker-board can.

GEO. A. HAWS
72 Pine Street, New York

OIL

10-12 H. P. Air-Cooled

De Tamble Buggy-Type Engine

A compact, reliable, sturdy little engine fully warranted to keep cool and deliver the rated power. Perfectly balanced and thoroughly high grade.

Two cyl. 4x4, double opposed. Overall dimensions: Length, 27½ in.; width, 16¾ in.; depth, 19½ in.; including flywheel. Weight, including flywheel, 180 lbs. Attractive prices in quantities. Prompt deliveries.

SPEED Carburetor

Positively Guaranteed

To develop greater power, speed, flexibility, and economy in the engine than any other carburetor in the world, or purchase price refunded.

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WE ALSO BUILD THE FAMOUS
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During many years of hard service it has proven its wonderful efficiency in commercial and pleasure vehicles.

Write for catalog, quotation, and the testimony of owners.

Speed Changing Pulley Co.
754 Washington St., Indianapolis, Ind.

The 1908 Peerless Jack—Improved

United States and Foreign Patents Granted.

The leverage is much easier than on our former makes of these jacks. The handle is 15 inches long, and shaped to make one of the best tire tools on the market. It can also be used as a hammer. The handle socket is curved, enabling the jack to be worked under any car. Working the handle below the level raises; working above level lowers, or turn handle over and work below level.

Specify Peerless Jacks for your cars.

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2-cylinder opposed air-cooled motor, built in two sizes, 12 and 18 H. P., for all purposes requiring continuous, reliable and satisfactory service.

Torbensen Motor Car Co.

Bloomfield, N. J.

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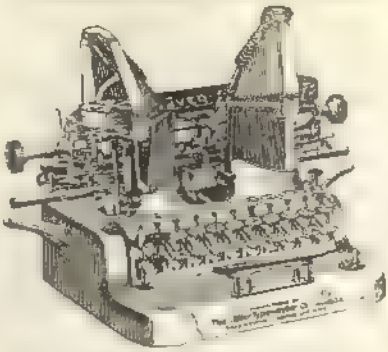

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THE DEMAND FOR CASTINGS

Aluminum, Brass and Parsons Manganese Bronze made the **ALLYNE WAY**, will be heavy after the first of the year.

We will be glad to quote on your requirements now either from sample Casting or blue prints.

Three large foundries located at the best shipping points in America insure prompt filling of orders when promised.

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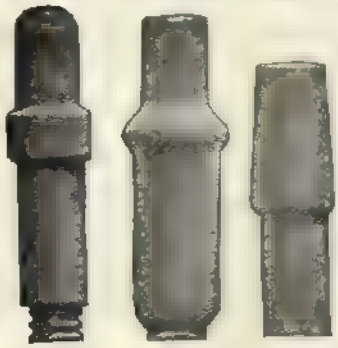
PORCELAIN TUBES and "ISOLIT" TUBES

FOR SPARK PLUGS

Any size or shape made after drawing or model. Our Porcelain and the composition "Isolit" are especially compounded for this purpose and combine perfect insulating and heat-resisting quality.



These tubes have been used for years by leading European manufacturers and have no equal in quality. Inquiries are solicited.

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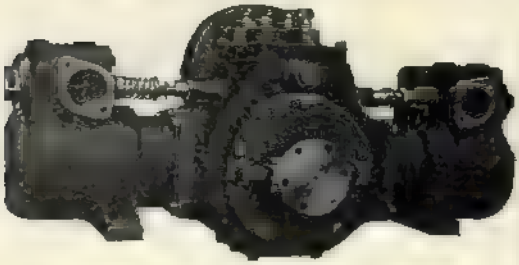

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Weight with Fly Wheel, 275 lbs.

16 H. P. Opposed.

25 H. P. Vertical.

High Class Automobile and Marine

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The A. Streit Machine Co. :: Cincinnati, Ohio

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Aluminum, Brass, Manganese Bronze, "A" Metal.

Our experience and facilities mean both good service and quick service. Tell us your special needs.

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The Automobile and Motor Boat builder will be interested in our Carburetor. Get full information by writing for circulars and catalogs.

M. L. OBERDORFER BRASS CO.

FORMAN ST.

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TYPE "C" 50

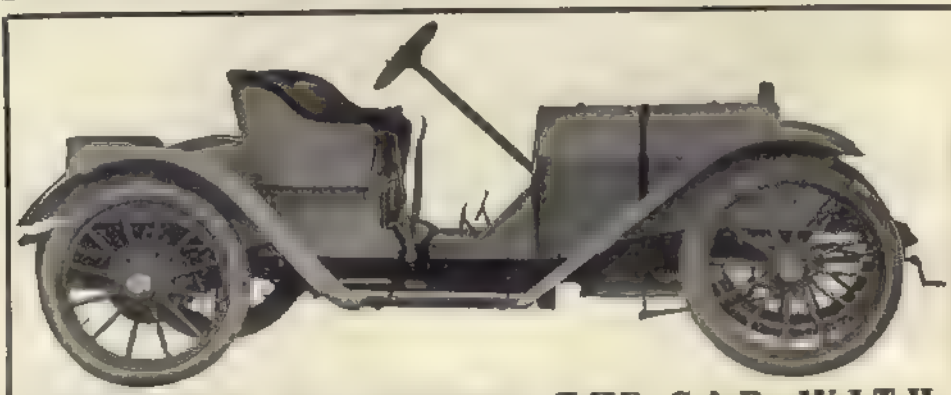
PENNSYLVANIA

Roadster, $2800

A DEMONSTRATION will convince the most particular prospect that the PENNSYLVANIA is all we claim. Catalogue upon request.

IN ITS ENTIRE CONSTRUCTION FAULTLESS. IN ITS APPOINTMENTS MOST COMPLETE

PENNSYLVANIA AUTO MOTOR CO. - Bryn Mawr, Pa.



IMPERIAL ROADSTER

THE CAR WITH

The Straight Line Drive

30-35 H. P.—36 in. Wheels, Selective Type Transmission—Eisemann Magneto

Double drop frame. Price, including gas lamps and generator—horn tools, etc., $2500.00.

MANUFACTURED BY THE

Imperial Motor Car Co., Williamsport, Pa., U. S. A.

Members A. M. C. M. A.

National
MOTOR CARS
"The All Ball-Bearing Cars"

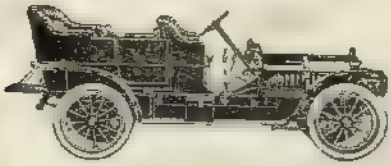
The 1908 Line consists of

Two 4-Cylinder and Two 6-Cylinder Models

In Touring Cars, Limousines and Roadsters

each equipped with

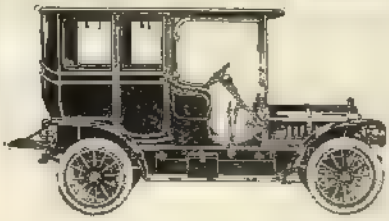
National Ball-Bearing Motors



The entire line embodies the tried and proven NATIONAL type of construction, refined and perfected in all details to the highest possible degree.

National Model K, 4-cyl., 4⅛x5, $3500
National Model N, 4-cyl., 5x5, 3700
National Model R, 6-cyl., 4½x4½, 4200
National Model T, 6-cyl., 5x5 5000

Each Machine Carries 7 Passengers Comfortably



Write for Descriptive Matter

National Motor Vehicle Co.
1003 East 22d Street
Indianapolis, Ind.

Apply this TEST to the STEVENS-DURYEA

Here's a simple quality test you can make for yourself prior to purchasing a motor car. Make a visit to the second-hand dealers and consult the "Automobiles for Sale" columns in the newspapers and Automobile Journals. It is obvious that the cars which are the most difficult to secure and depreciate the least in value are the cars of quality.

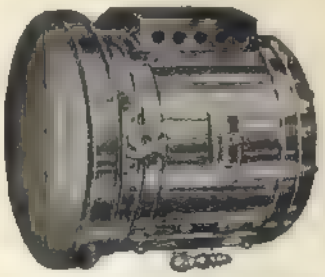
It is difficult to find Stevens-Duryea cars in the second-hand market. They are not built on the change-models-every-year plan—they are not out-of-date in a season. Moreover the Stevens-Duryea Unit Power Plant and Three Point Support make possible a car of wonderful simplicity and durability. Therefore the small price-depreciation in the Stevens-Duryea when you *do* find one.

Apply this test for yourself. Measure the Stevens-Duryea with any other car on this basis. The second-hand market is a barometer of automobile quality. Every car then stands on its merits alone.

Stevens - Duryea Co.
Chicopee Falls, Mass.
Members A. L. A. M.

Phoebus Lamps and Generators

Designed for the automobilist who wants the best. They are constructed on attractive lines of excellent materials and finest finish.



$\frac{1}{16}$" brass body, reinforced with extra bands ¼" thick. Full size Bausch & Lomb Mirror, Adjustable Focus.

Double Generator. Heavy Gauge brass Automatic cut-off Valve; water jacket cast base.

Very handsome square lamp, heavy gauge brass silver reflector, perfect draught, will stay lit.

We can meet all competition in **Price, Quality and Prompt Delivery.**

Get Our 1908 Booklet

Manhattan Screw and Stamping Works, New York City

THE STAR

A speedometer with all the merits and none of the defects of its many competitors. As accurate as a watch, and as staunch as a steam engine. Nothing to get out of order, since there is only one spring in the entire instrument.

Investigate the "STAR" before purchasing a speedometer for your new car.

Price, $35.00. Discount to the Trade

You can braze cast iron or any other metal successfully with

THE "BEST" BRAZING COMPOUND

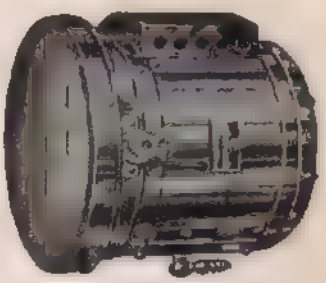
Put up in packages to be retailed at 50 cents each, and sold with a guarantee to do the work or money refunded.

Distributed by **GEORGE W. NOCK CO., Philadelphia, Pa.**

Distributors for the leading makes of Coils, Speedometers, Batteries, Tires, Ignition Apparatus, Lubricants and Automobile Sundries of all Descriptions. "Thermoid Brake Lining." Send to Dept. "C" for Catalog.

Phoebus Lamps and Generators

Designed for the automobilist who wants the best. They are constructed on attractive lines of excellent materials and finest finish.



$\frac{1}{16}$" brass body, reinforced with extra bands ⅛" thick. Full size Bausch & Lomb Mirror, Adjustable Focus.

Double Generator, Heavy Gauge brass, Automatic cut-off Valve; water jacket cast base.

Very handsome square lamp, heavy gauge brass, silver reflector, perfect draught will stay lit.

We can meet all competition in **Price, Quality and Prompt Delivery.**

Get Our 1908 Booklet

Manhattan Screw and Stamping Works, New York City

DIETZ

"Majestic" Headlights

"THE OLD RELIABLE"

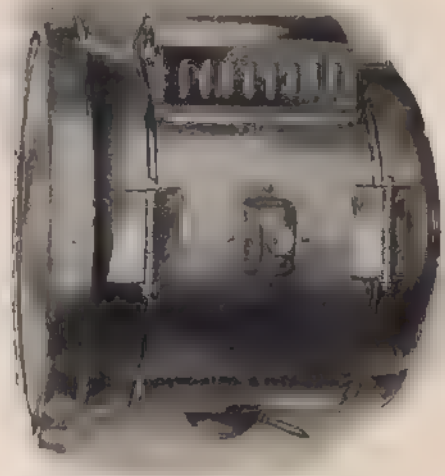
DIETZ MOTOR CAR LAMPS

NONE "JUST AS GOOD"

being furnished with your new car.

Dietz 6 in. Majestic, $18.00 per
" 7 " " 22.00 "
" 8 " " [illegible] "
" 10 " " [illegible] "

Satisfactory trade discounts.
Equipped with Standard sockets to fit regular brackets.



DIETZ "MAJESTIC"

R. E. DIETZ COMPANY, **60 Laight St., New York City**

PACIFIC COAST E. J. Day & Company, Oakland, Cal.

We make over 20 styles of motor lamps.

LARGEST MAKERS OF LANTERNS IN THE WORLD **Established 1840**

The Autocar's Adaptabilty to Commerical Use

The adaptability of the Autocar roadster to commercial purposes, is demonstrated by its use in the Seattle Fire Department. A 1908 roadster specially designed and equipt for the use of the chief of the fire department of Seattle was turned out from the Autocar Co.'s factory at Ardmore, Pa., recently, and is illustrated herewith. The car is arranged to seat the chief, a driver and three firemen, and to carry in addition a chemical extinguisher and other fire fighting apparatus. It is capable of making sixty miles an hour and an account of the great efficiency of the Autocar control, is especially adapted for the sudden turns and emergency situations in the city streets.

"Autocar" Roadster specially equipt for use ofa fire chief.

The Western Rapid Transit Company, with a capital stock of $125,000, was recently incorporated for the purpose of operating motor omnibuses on the principal streets of San Francisco. The company proposes to charge a five-cent fare.

The Friction Drive Plymouth Cars

With Gasoline Motive Power

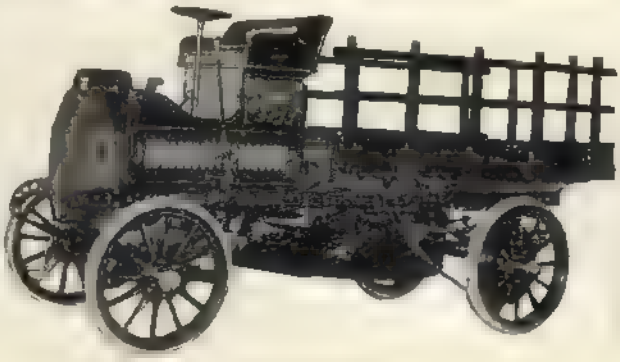
COMMERCIAL TRUCKS FROM 1000 TO 5000 POUNDS CAPACITY

SIGHT-SEEING VEHICLES FROM 12 TO 20 PASSENGERS

¶ 35-40 H. P., WATER COOLED, FOUR CYLINDER MOTOR. Double Friction Drive, direct independent chain drive to each rear wheel, no differential gear being required.

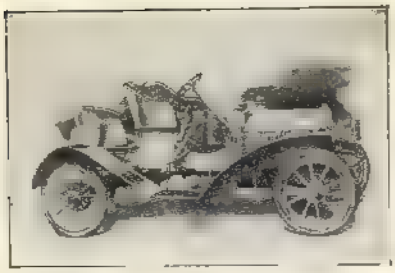
¶ THE PLYMOUTH CARS have stood the severest tests and proved our claims to having the most reliable and efficient commercial cars on the market.

¶ We solicit your correspondence and invite inspection, believing that a comparative examination is the quickest way to convince the prospective purchaser of the many advantages to be found in the PLYMOUTH.



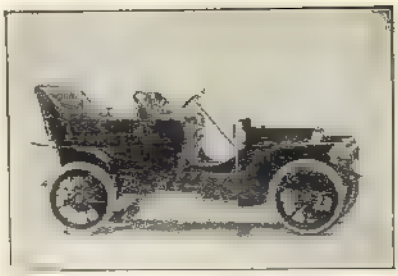
COMMERCIAL MOTOR TRUCK CO.

PLYMOUTH, OHIO

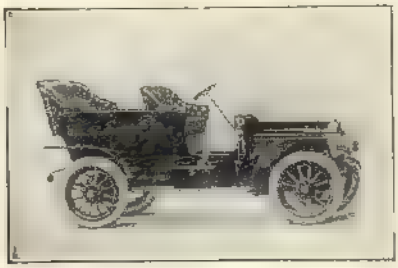


Model "G" Runabout, $2000.00
25 H. P. Four Cylinder.

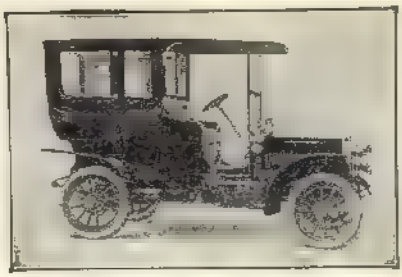
The Most Complete Line Made by any One Maker in the World.



Model "G" Touring Car, $2000.00.
25 H. P. Four Cylinder.



Model "H" Touring Car, $2500.00.
30 H. P. Four Cylinder.

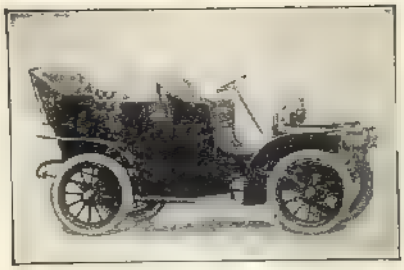


Model "G" Limousine, $3000.00.
Model "H" Limousine, $3600.00.

No matter what your requirements or your purse, there is a Cadillac to meet them.

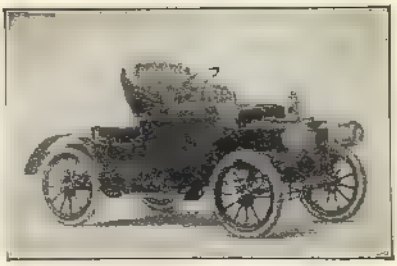
Cadillac

The name that represents the really practical achievements in motor car construction.



Model "T," $1000.00.
10 H. P. Single Cylinder.

Refinements in Cadillacs just commence where in most cars they leave off.



Model "S" Runabout, $850.00.
10 H. P. Single Cylinder.

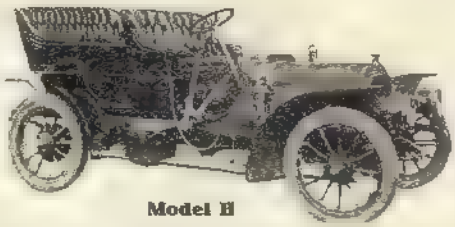
Model "T" Coupe, $1350.00.
10 H. P. Single Cylinder.

CADILLAC
Motor Car Co.
DETROIT, MICH.
Member A. L. A. M.

Model "M" Delivery, $1000.00.
10 H. P. Single Cylinder.

Pullman AUTOMOBILES

Not Only the Best at the Price But the Best at Any Price.



Model H

MODEL H, LIGHT TOURING CAR

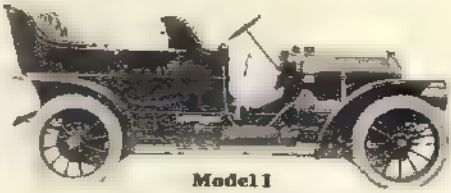
Price $1875

4-cyl., 20 H. P. motor. Transmission,—selective type, three speeds forward and reverse. Wheel Base, 100 in. Pressed steel frame, I-beam front axle. May be converted into a runabout. Full equipment and storage battery.

MODEL I, TOURING CAR

Price $3250

4-cyl., 40 H. P. motor. Double ignition system, battery and magneto Transmission,—selective type, four speeds forward and reverse. Pressed steel frame; I-beam front axle, with roller bearing steering knuckles. Wheel base, 118 in. Full set lamps, generator, horn and tools.



Model I

"6-30" Runabout

6-30 "PULLMAN" 6 Cylinder Runabout

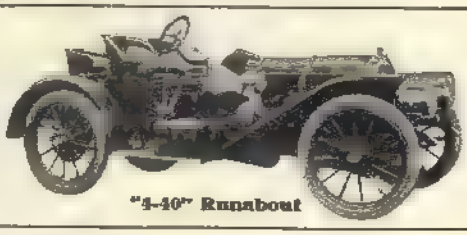
Price $2750

6 cyl., 30 H. P. motor. Double system of ignition, battery and magneto. Transmission,—selective type, three speeds forward and reverse. Wheel base, 104 in. Speed 60 to 65 miles per hour. Full equipment of lamps, generator, tools and horn.

4-40 "PULLMAN" RUNABOUT

Price $3000

4 cyl., 40 H. P. motor. Double ignition system, battery and magneto Transmission,—selective type, three speeds forward and one reverse. Wheel base, 108 in. Speed, 60 to 65 miles per hour.



"4-40" Runabout

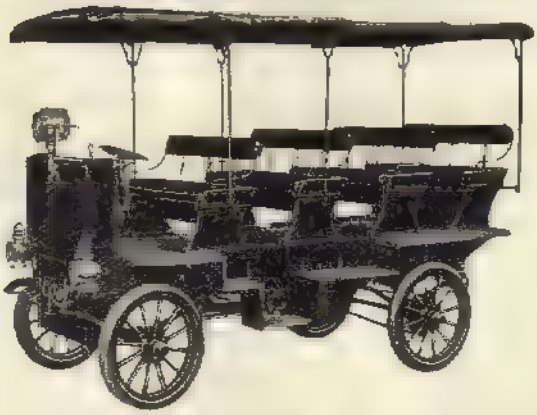
In construction, appearance, power, running qualities and price, the "Pullman" cars are unequalled by any on the market. They offer an excellent line for the dealer who wants to handle quick-selling cars. Write for our proposition.

YORK MOTOR CAR CO.,

YORK, PA., U. S. A.

The Rapid Line of Commercial Cars

The Rapid line of commercial cars contains a model especially adapted for your needs, whether you are delivering goods to residences, hauling passengers or trucking. We also make police patrols, hospital ambulances, chemical cars, hose wagons, and anything special a customer may want.



A wonderful demonstration of automobile dependability was made by a Rapid 12 passenger bus, which carried its full load the entire 600 miles of hills, sand, crushed rock and mud on the Chicago Motor Club's three-day Reliability Run in November. Every checking station was reached from a half hour to an hour ahead of the pleasure car schedule, and the entire car was officially declared in perfect condition at the completion of the test.

Rapid Agents have a prospective purchaser in every user of two or more horse drawn vehicles, for a properly operated Rapid will save its owner from $500 to $1200 every day it is used. If you are using horses in any service or are interested in the excellent possibilities of a Rapid agency, write me now.

B. M. HENRY, Sales Manager

Rapid Motor Vehicle Co., Pontiac, Mich.

THE FORT GEORGE HILL CLIMB

(NEW YORK, APRIL 9th)

First contest in 1908 to determine the relative merits of all the leading makes of Automobiles, both American and Foreign.

Shows a Sweeping Victory for the "Full Jeweled"

CORBIN

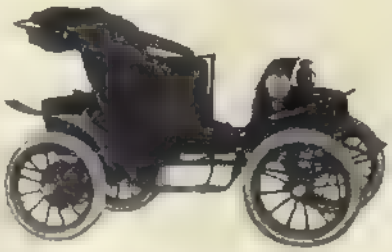
30 H. P. Stock Roadster, selling at $2500. Time: 42 4-5 seconds.
Winner in its class, gasoline cars, selling from $2000 to $3000.
Winner in class open to cars of all types selling for $2000 to $3000.
Made faster time than any gasoline car selling for $4500 or less.
Defeating the Pope-Hartford, Stoddard-Dayton, Knox, Oldsmobile, Stearns, Simplex and Renault four-cylinder cars; Stearns, Stevens-Duryea and Hotchkiss six-cylinder cars and THIRTY OTHERS.

The Corbin wins because it is a 30 H. P. car that actually delivers 30 H. P. at the rear wheels,—because the entire car, motor and transmission, runs on imported ball bearings,—because the construction of a light-weight car allows the use of none but the best materials.

Ask Owners of Corbin Cars how they Stand Up in Every-Day Use

THE CORBIN MOTOR VEHICLE CORPORATION of NEW BRITAIN, CONNECTICUT

RAUCH & LANG ELECTRICS



represent the pinnacle of

GRACE COMFORT
SAFETY CONVENIENCE

Learn about our wonderful SAFETY LOCKING DEVICE and ELECTRIC BRAKE CONTROL. These patented devices found only on **Rauch & Lang Cars.** Many other exclusive improvements.

Catalog describing and illustrating our eleven different models mailed on request.

THE RAUCH & LANG CARRIAGE CO.

627 Superior Ave., Cleveland, Ohio

OUR MACHINES ON DISPLAY AT THE FOLLOWING SALESROOMS

CHICAGO, ILL. C. P. Kimball & Co., 315 Michigan Ave.
DETROIT, MICH. Wm. F. V. Neuman & Co., 1342 Woodward Ave.
ST. LOUIS, MO. Union Electric Light & Power Co.
TOLEDO, OHIO. Toledo Motor Car Co.
DAVENPORT, IOWA. Mason Carriage Co.
MANCHESTER, N. H. Jas. A. Wellman, Pembroke Bldg.
ERIE, PA. A. H. Murphy, 918 State St.
CINCINNATI, OHIO. Suburban Auto Garage.
DENVER, COLO. Colburn Auto Co., 15th & Colfax Ave.
KANSAS CITY, MO. Fletcher Lowhard Jr. Auto Co.
BALTIMORE, MD. Rice's Garage, North & Madison Ave.
ST. PAUL, MINN. F. W. Rammely, 50 Grand Ave.
ROCHESTER, N. Y., Arthur McNall, So. Union and Court Sts.
GOSHEN, IND., Teegarden & Putt

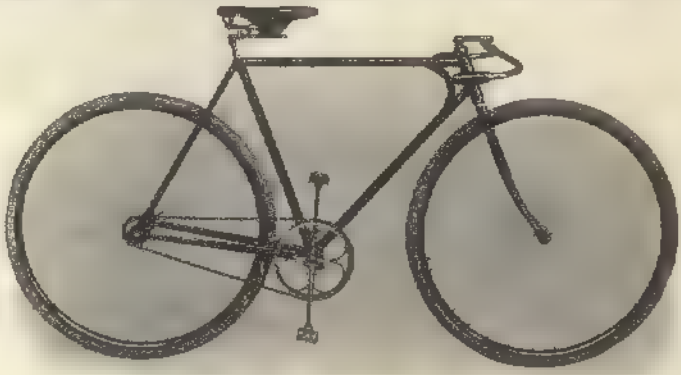
Reliable dealers wanted to represent us in cities where we have no agents

READING STANDARD

BICYCLES AND MOTOR CYCLES

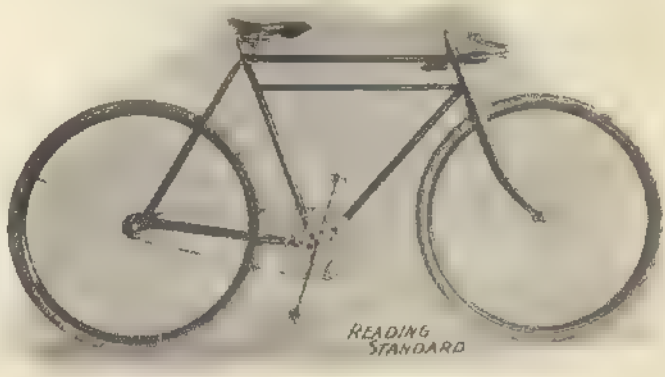
Reading Standard Bicycles

The Most Complete Line Ever Offered to the Dealer



READING STANDARD RACER, "The 50-Mile-an-Hour Wheel"

A model for every requirement, and every one a model of its kind. The READING STANDARD agent is in position to meet every call that may arise and few are the orders that can get past him.



READING STANDARD ROADSTER, Will Take You There and Back

THERE ARE NO BLANKS IN THE READING STANDARD LINE Every one is a winner, as it embodies all the excellences that make a bicycle desirable. If you do not know the READING STANDARD line, get acquainted at once.

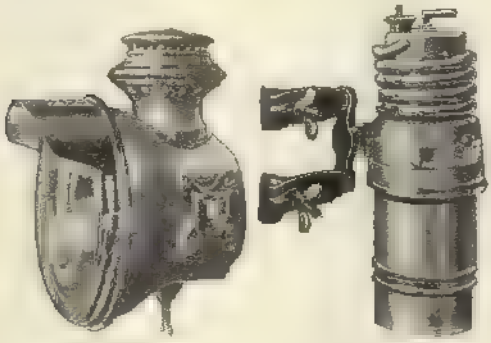
Write us for full information.

READING STANDARD COMPANY :: READING, PA

The "Rose" Motorcyle Gas Lamp and Generator

Following the suggestions of various motor cycle owners as well as motor cycle manufacturers the Rose Manufacturing Company, 910 Arch Street, Philadelphia, Pa., has designed the motor cycle headlight and generator shown herewith, the result of this concern's vast experience in the motor vehicle lighting line.

The headlight is equipped with a special mirror lens reflector and a forward aluminum reflecting flange. A specially constructed hood is fitted for throwing the light on the road, and incidentally protecting the eyes of the rider. The lamp is



The "Rose" Motorcycle Gas Lamp. The "Rose" Motorcycle Gas Generator.

equipt with two bracket holders, in order to impart rigidity. A holder for flat bracket at rear of headlight is furnished only when requested. The headlight has a 6-inch face, and is 7¾ inches high. It is made of brass, nickel plated, and fully riveted thruout and cannot shake apart.

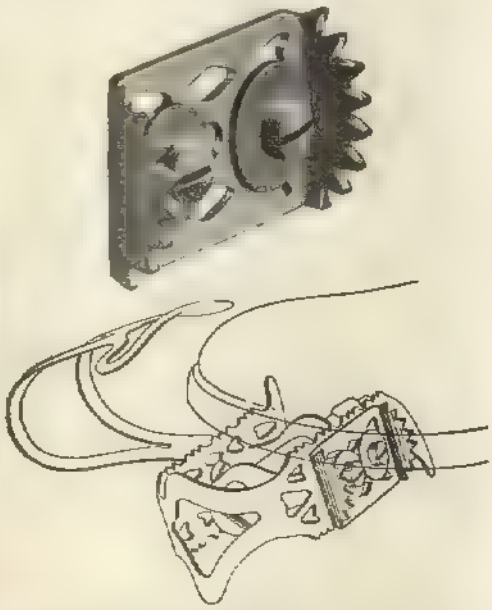
The Rose motor cycle gas generator is made on the most approved lines of acetylene gas generation. It is 8¼ inches high, 3¼ inches in diameter, and is fitted with a bracket especially designed for securely fastening it to the front fork of the motorcycle. An adjustable clamp is fitted for maintaining the generator in a perpendicular position. The generator will burn for 6 hours on one charge.

This generator contains the Neverout Patent Air Cooling System, thereby insuring a steady and bright light.

The "Kach Klipx" for Catching the Pedal

The Persons Mfg. Co., Worcester, Mass., have added to their line another of those small things that serve useful purposes—the Kach Klipx, as they call it, designed to make the "catching" of a pedal a simple and easy matter when toe clips are used.

All pedal cycle and motorcycle riders know the trouble that is usually encountered in trying to turn the pedal so that the toe may be slipped into the toe clip. Generally the foot engages the flat side of the pedal and the slight backward pressure necessary to roll the pedal into the correct position results in the foot slipping off, often with disagreeable results. The Kach Klipx is designed to correct this tendency without adding either noticeable weight or mechanism to the pedal. It is a simple little contrivance, consisting of a toothed metal plate screwed on to the



The "Kach Klipx." Upper cut shows the device before being applied to the pedal, and the diagram below illustrates the action of the device in use

flat side or back of the pedal where the sole of the shoe will engage it and permit the pedal to be readily rolled by the foot into a position where the toe can be easily slipt into place.

The Persons Manufacturing Co. will mail a sample pair of these Kach Klipx to any rider or dealer upon receipt of 16 cents in stamps.

Denver, Col., is said to have no less than 650 motorcyclists, and an effort is now being made to organize a club and secure a house, fit it up as a modern athletic club, with shower baths, billiard room, shelter for at least one hundred machines and other conveniences.

Application has been made by President W. A. F. Estes for a permit authorizing the use of the streets for the motorcycle race to be held in Waltham, Mass., on July 4th. As soon as action in the matter is taken by the Mayor, a meeting of the local and Boston clubs will be held to make definite plans for the event.

R-S

MOTOR CYCLES

BUILT AND TESTED IN THE MOUNTAINS

America's Best MOTORCYCLE

It is a sweeping claim, but it is a machine that justifies the claim. No motorcyle incorporates more features, and every feature is a useful one that must appeal to the practical man.

IN OUR

Reading Standard Bicycles

we present the most complete line ever offered to dealers or the public—standard diamond frames, two types of truss frame, large sprocket models. Not many orders can get past the up-to-the-minute, live Reading Standard Agent.

Reading Standard Company

READING, PA.

Buy a Real Motorcycle

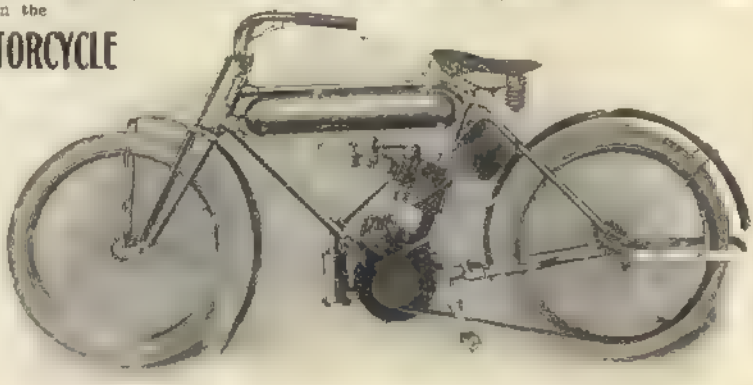
THE M. M. SPECIAL—because it has the STRENGTH to carry you everywhere, POWER to climb any grade, SPEED that has no equal, STABILITY to negotiate every road anywhere, ENDURANCE that knows no limit a PERFECT CONTROL so simple and easy that you have absolute confidence in the machine from the very start.

WE ARE MAKING IMMEDIATE DELIVERIES AND NOT PROMPT PROMISES

M. M. SPECIALS are all equipped with the new perfect 3 leafspring fork the only real spring fork used in motorcycle construction. This, together with its 3½ H. P. special balanced engine, low frame construction, patent motorcycle stand, flexible double grip control, priming device on fuel tank, newly designed cylinder, muffler, etc., are some of the features on the

REAL MOTORCYCLE

for 1908

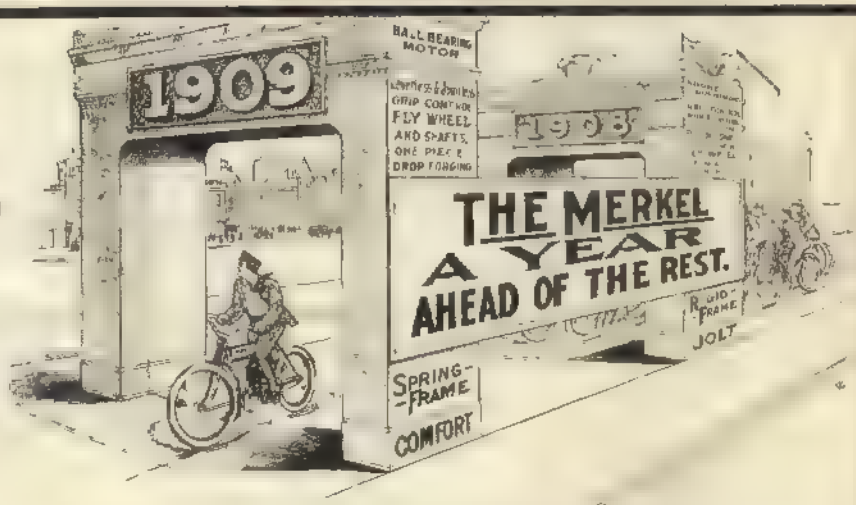


AMERICAN MOTOR CO.

725 CENTRE ST.,

Brockton, Mass.

There Is No Question About the Leadership of the Merkel



It "makes good" for motor-cycle riders, and is a strong trade builder for motor-cycle dealers.

THE 1908 MERKEL

starts to-day where other motorcycles will be in 1909. It has not just happened that the Merkel sales are increasing faster than those its competitors. It is because its points of superiority make the Merkel give also more satisfaction and gain for it the recommendation of every man who rides or sells it. With its Spring Frame and extra long Wheel Base, with the speed assured by its H. P. Ball Bearing Motor (with Magneto Ignition if desired) and the safety afforded by its Double Grip Control, the Merkel easily in all fairs its leadership.

Price, $210. With Spring Fork $225. With Magneto Ignition, $40 additional

MERKEL MOTOR CO., 1098 26th Avenue, Milwaukee, Wis.

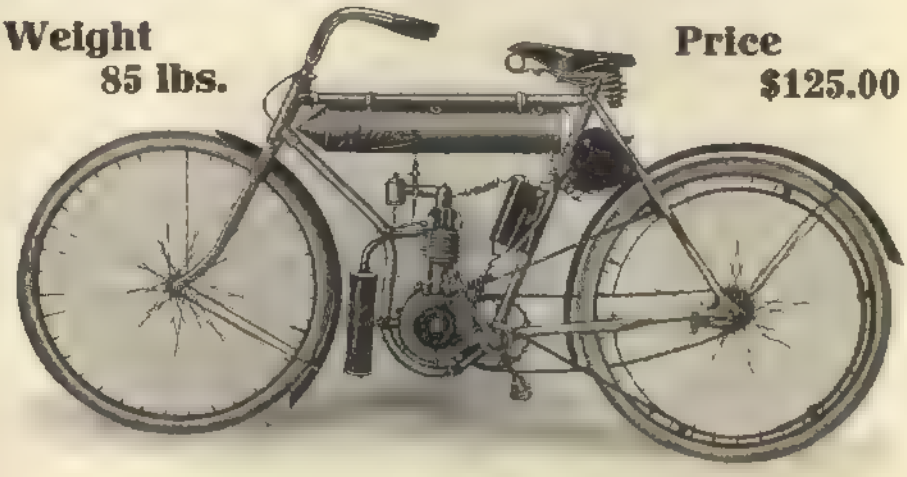
REPRESENTATIVES:

Pacific Coast, Miller & Worthington, 103 So. Main St., Los Angeles, Cal. Chicago and Cook County, Ill. I. H. Whipple, 20 W. Jackson Blvd., Chicago. New York, Jersey City and Long Island, E. J. Willis Co., 8 Park Place, New York City. Brooklyn, N. Y., John Pfleiger, 1604 Bushwick Ave., Brooklyn, N. Y. Cleveland and Northeastern Ohio, L. J. Mueller, 1[illegible] Woodland Ave., Cleveland, O.

Reliance Junior

Weight 85 lbs.

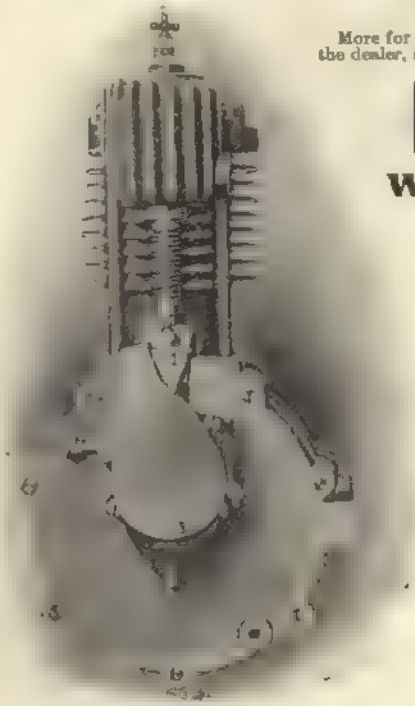
Price $125.00



SPECIFICATIONS

RELIANCE JUNIOR:
Wheel base 52", height 20", wheels 28", steel rims.
RELIANCE 28x2" single tube motor tires, made and guaranteed by Kokomo Rubber Co. Option G & J clincher type; 2", $5.00 extra, truss spring fork $5 00 extra.
Motor: Cylinder Bore 2 3/16", stroke 2 3/8", drop-forged connecting rod, 3/4" hardened wrist pin, 5/16" piston pin.
Bushings: Non-Gran Bronze, the highest quality made.
Axles: have hardened steel bushings forced on, and crank case has Non-Gran Bronze bushings.
Belt: Barnes Mineral tanned, double thick, stitched, 1 1/4" flat.
Carburetor:—Float feed.
Tank has one gal. gasoline capacity, one qt. lubricating oil.
Speed: Five to 30 miles.
Finish: Crimson or Yale blue.

More for the money than ever offered: A money maker for the dealer, absolute satisfaction to the rider.



Reliance Regular

Weight 110 Price $175.00

SPECIFICATIONS

Wheel base 55", height 20 1/2"; Tires, G & J Clincher style, heavy motor, 28x2".
Motor:—3x3 bore, drop-forged connecting rod, bushed with Non-Gran Bronze, 5/16 piston pin, 1" wrist pin, both hardened
Axles: 1" hardened and ground.
Crank Case Bushings:—Non-Gran Bronze
Carburetor:—Breeze or Heitger float feed
Belt:—Barnes mineral tanned, flat, 1 1/2" wide, double thick, stitched.
Fork:—Cushion spring truss, perfect in detail and operation
Saddle:—Messinger Standard or Cavalry
Gasoline Capacity:—6 qts.
Oil Capacity:—1 qt.
Lubrication:—Constant sight feed.
Speed:—5 to 40 miles.
Finish:—Yale blue, crimson or black.

This model is the most powerful and simplest in construction of anything offered in the market to-day.

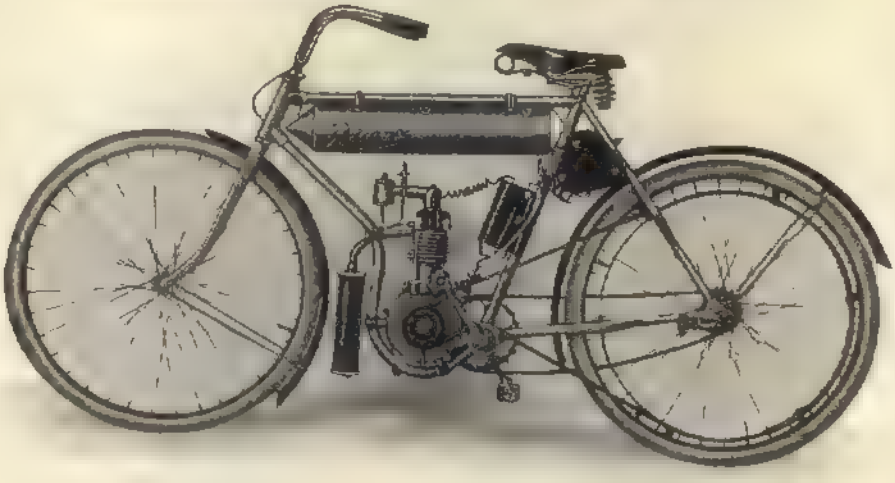
Get our literature and prices to the trade. They are interesting

We have for sale a limited number of 1907 2 H. P. motors at a bargain.

Reliance Motor Cycle Company

Owego, New York

RELIANCE,—3 H. P.



GET ADVANCE CIRCULAR NO. 2

ADDRESS

RELIANCE MOTORCYCLE CO., Owego, N. Y.

It's the Machine—

the excellent qualities of which enable its riders to secure success in open competitions all over the world.

Mr. J. D. Hamilton, the well-known motor cyclist, who successfully competed in the British A.C.C. Trials with an N. S. U., writes:

"In the last competition I found it (the two-speed gear) invaluable, and it was only by letting in the second speed that I managed to negotiate the horses and dogs at the foot of Birdlip, and get to the top without dismounting. The machine and two-speed gear I used are the same as I took over the Juras and Alps into Italy, and this, coupled with the fact that I did not lose a single mark for reliability in the last severe trials, is sufficient indication of their excellence."

It's the Machine

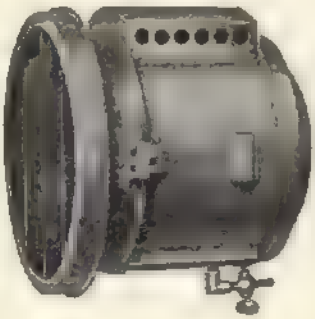
which gives such unqualified satisfaction to its owners by reason of the fact that it "never fails" at the severest test or on the tour.

We will send you full particulars with pleasure.

N. S. U. Motor Co.
206 W. 76th St., New York.

N. S. U.

What Kind of Glass is It?



THE nearer the burner is to the lens mirror, the more important it is that the lens mirror be made of heat-resisting glass. Glass answering every purpose in cheap long-focus lens mirrors comes dangerously near the breaking point when the flame is moved close to it.

LEAD glass is about 30 per cent. heavier than ordinary glass, and conducts heat proportionally faster. Therefore it expands evenly without strain. It is also tougher, and holds the silver backing better. Ordinary glass is green; lead glass is slightly gray—almost colorless.

The Rushmore Lens Mirrors have for years been made of annealed LEAD glass, which costs more in the rough disc than the ordinary ground and polished lens. The RUSHMORE STANDARD distance from the flame to the front plane of the lens is nearly 40 per cent. shorter than the Navy Standard. In the 8 inch Rushmore Lens Mirror, that distance is 1¼ inches, as against about 2 inches for the Navy Standard. Such a combination of lighting efficiency and durability is equaled nowhere in the world.

RUSHMORE DYNAMO WORKS,

PLAINFIELD, N. J.

LONDON :: *PARIS* :: *CHICAGO*

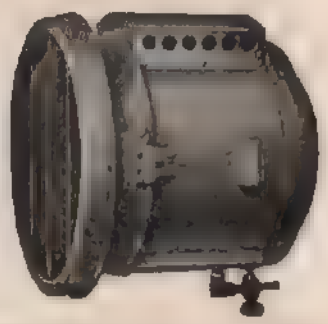
The

Short Focal Distance

of the Lens Mirror in the

Rushmore Searchlights

is indicated by the position of the burner



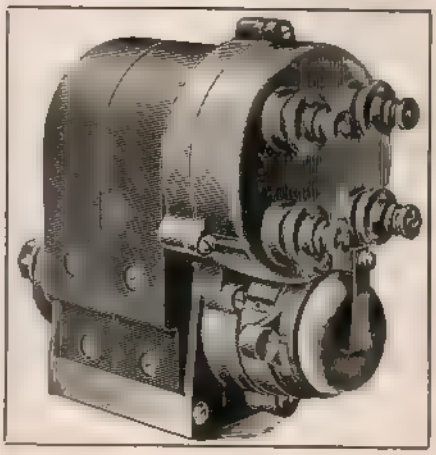
Notice how far back it is. Compare it with the burner position in any of the imitations. And remember that the Rushmore Lens Mirror is **larger,** for equal diameter of shell, than any other, and is made of the toughest annealed lead glass, which stands the heat.

That is why Rushmore Lens Mirrors project the **most** light, project it **farthest,** and **last longer** than any others. And the rest of Rushmore construction is like the lens.

RUSHMORE DYNAMO WORKS

PLAINFIELD, NEW JERSEY

LONDON PARIS CHICAGO



IF the efficiency of an ignition system depends upon the intensity of the spark, then

THE

"KOMET"

HIGH TENSION MAGNETO

has the ordinary dry or storage battery "beaten a mile."

Talk about the "hot, fat spark" which the battery cell makers never tire of describing—well, the spark from the "KOMET" magneto isn't simply a spark, but a hot arc light flame. It will instantly ignite a mixture that you couldn't touch with an ordinary spark.

With the "KOMET" the induction coil is dispensed with. The high tension current is generated directly in the armature, and is distributed to the various terminals by means of a distributing disc, which is a part of the magneto.

THE GEO. O. HILL COMPANY, Boston, Mass.

SOLE DISTRIBUTORS FOR

THE DOW PORTABLE ELECTRIC CO. Braintree, Mass.

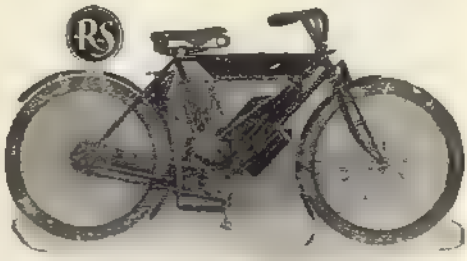
AGENCIES

NEW ENGLAND - - W. J. CONNELL, 36 Columbus Avenue, Boston, Massachusetts
MIDDLE STATES - Factory Sales Corporation, 235 Randolph Street, Chicago, Ill.
PACIFIC COAST - - L. R. & B. I. BILL, 132 Valencia Street, San Francisco, Cal.

"America's Best"

Reading Standard Bicycles *and* "R-S" MOTORCYCLES

The Irresistible Line for 1908.



BUILT AND TESTED IN THE MOUNTAINS.

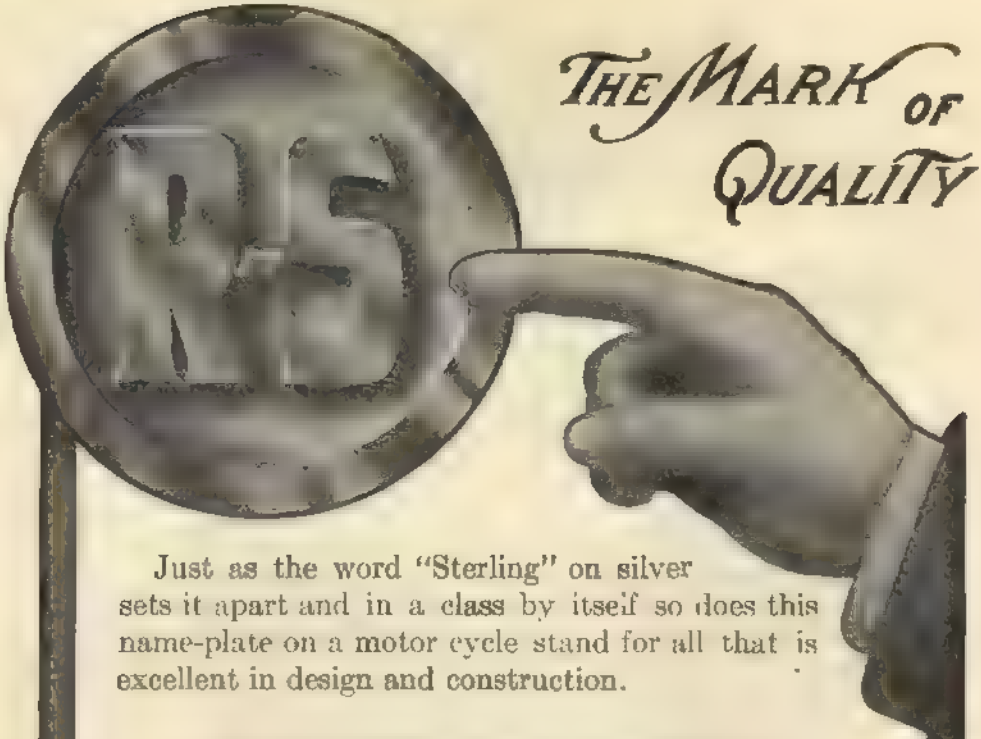
The Reading Standard Bicycle line includes single frames, Truss frames, Double Head frames; Roadsters, Road Racers and Racers and Pace-followers from $25.00 to $60.00.

The "R-S" Motor Cycle line includes single Cylinders, Twin Cylinders, Motor Bicycles, Tricycles, Ladies' Tricycles, Men's Tricycles, Delivery Tricycles. Prices from $175.00 to $325.00.

ALL "R-S" MOTOR CYCLES except Model "B" have the "R-S" MECHANICAL INTAKE VALVE MOTOR, the first and only Real Mechanical Intake Valve Motor manufactured and marketed in the U S today. The advantages and superiority of the mechanical intake valve motor over the automatic are so apparent that other manufacturers are now beginning to follow our lead.

Write us for catalogue and full description.

READING STANDARD CO.,
READING, PA.



Just as the word "Sterling" on silver sets it apart and in a class by itself so does this name-plate on a motor cycle stand for all that is excellent in design and construction.

R-S Motor Cycles

Are America's Best Motor Cycles

A broad claim, but one which the machine itself will justify.

If not represented in your town, better write promptly for terms. The "R-S" will prove a profitable investment for you.

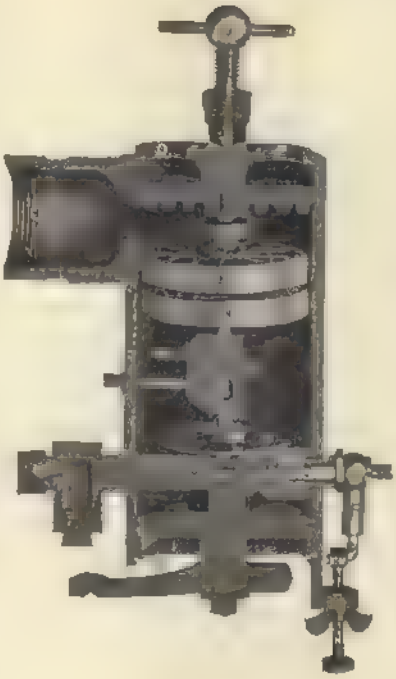
BUILT AND TESTED IN THE MOUNTAINS

READING STANDARD COMPANY

Reading, Pa., U. S. A.

Makers of the Celebrated Reading Standard Bicycles

Our 4-Cycle Model



The world wonders at the superiority of

The Scientific Carburetor

The secret of its performance lies in the following facts:

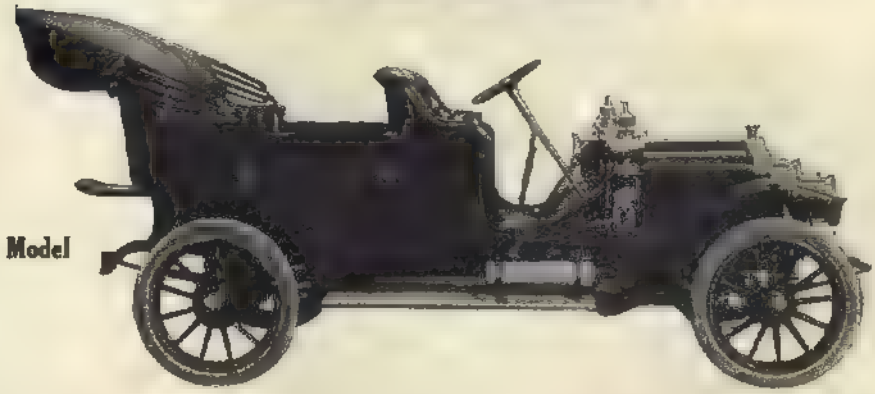
1. The maintenance of the correct proportions of fuel to air throughout the different degrees of throttle openings.
2. The addition of the correct amount of heat to form the mixture into a *gas*.
3. The thoroly breaking up, by mechanical means, all fine particles of fuel, making a gas which explodes completely upon being ignited, thereby gaining the greatest amount of power which it is possible to get from each separate explosion, whether the engine is running slow or fast.

Read **"CARBURATION"**
Sent Free on Request

The E. W. STEVENS COMPANY

EAST NEW MARKET, MD.

THE SELDEN CAR



Model

Five Passenger Touring Car, $2000
Three Passenger Runabout, $2000

AN ATTRACTIVE CAR
AT AN ATTRACTIVE PRICE

SPECIFICATIONS

Engine—4 cylinders 4¼ x 4½, 28-30 brake horse-power.

Transmission—3 speeds forward and reverse, selective, Timken bearings.

Wheel base—109 inches; tread, standard; clutch, cone leather.

Body—sheet metal, straight line type, roomy and comfortable.

Tires—32x3½, quick detachable; make optional.

Frame—pressed steel, 4¾ inches deep.

Front axle—single I-beam drop forging, ball bearings.

Rear axle—Bevel gear drive, enclosed type, roller bearings.

Ignition—synchronized jump spark.

Weight—empty, 2,200 lbs. (actual, not catalog.)

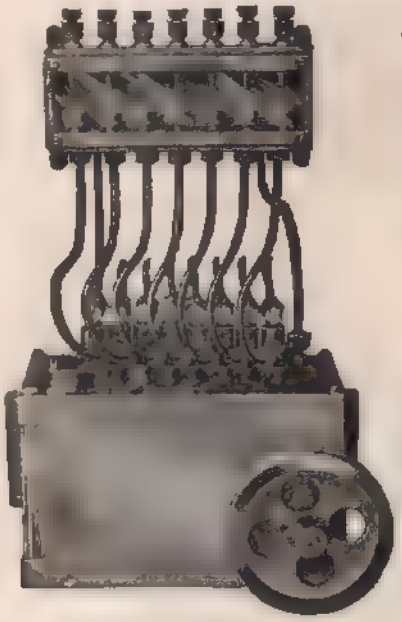
REPRESENTED IN GREATER NEW YORK BY
The Palmer & Singer Manufacturing Company, 1620 Broadway

SELDEN MOTOR VEHICLE CO.

ROCHESTER, N. Y.

Members A. L. A. M.

AGENCIES WANTED IN UNOCCUPIED TERRITORY



THE "SHERWOOD" MECHANICAL FORCE SIGHT FEED MULTIPLE OILER

The Simplest—Most Reliable and in all respects the most satisfactory and best oil pump

Set of Sight Feeds and Pump Reservoir separated so that each can be located at most convenient point, or furnished with sight feeds on reservoir so that entire device can be located at one place.

Does not depend on gravity for feed of oil from sight feeds to cylinders, but gives a positive mechanical feed of oil to the sight feeds and from the sight feeds to the parts to be lubricated.

MANUFACTURED BY

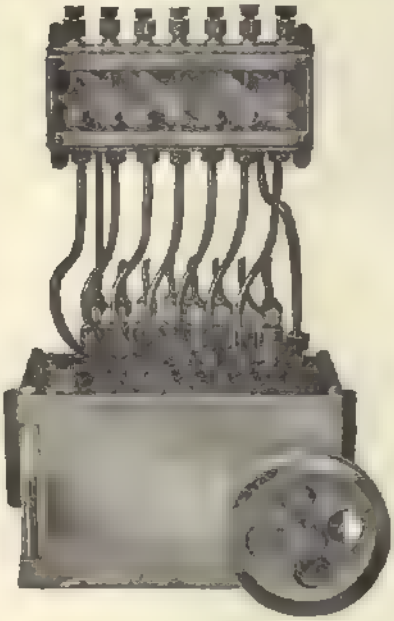
The "Sherwood" Manufacturing Co.

BUFFALO, NEW YORK

CATALOGS AND PRICES FURNISHED ON APPLICATION

THE "SHERWOOD" FLOAT FEED CARBURETOR

Simple Construction
Reliable Feed
Perfect Mixture
Positive Shut Off
Easy to Operate
Wide Working Range
Starts Quickly and Easily
Perfect Control of Engine
Economical in Fuel Consumption
Maximum Horse Power from Engine



THE "SHERWOOD"
MECHANICAL FORCE SIGHT FEED MULTIPLE OILER

The Simplest—Most Reliable and in all respects the most satisfactory and best oil pump

Set of Sight Feeds and Pump Reservoir separated so that each can be located at most convenient point, or furnished with sight feeds on reservoir so that entire device can be located at one place.

Does not depend on gravity for feed of oil from sight feeds to cylinders but gives a positive mechanical feed of oil to the sight feeds and from the sight feeds to the parts to be lubricated.

MANUFACTURED BY

The "Sherwood" Manufacturing Co.

BUFFALO. NEW YORK

CATALOGS AND PRICES FURNISHED ON APPLICATION

THE "SHERWOOD"
FLOAT FEED CARBURETOR

Simple Construction
Reliable Feed.
Perfect Mixture
Positive Shut Off
Easy to Operate
Wide Working Range
Starts Quickly and Easily
Perfect Control of Engine
Economical in Fuel Consumption
Maximum Horse Power from Engine

THE

SIRENO

Patented Feb. 4, 1908
Other Patents Pending

A

DeLuxe Electric SIREN!!!

"The Horn of Plenty" Noise. It's Electric

¶ If you are looking—or listening—for an Electric Siren for your Motor Car or Motor Boat that adds a truly distinctive "note" to the most expensive outfit—just mail us your cheque for $35.00 to-day.

¶ In return we will, at once, express you prepaid, the SIRENO in beautifully polished brass, complete with wire, push button and all directions for installing. If after a thorough test a pair of hands, a screw driver and ten minutes are all that are necessary to install it—you do not find it all we claim, and more, then send it back, and we will refund your money promptly and without question.

THE SIRENO

It's Features. It's Advantages.

¶ First and Foremost the SIRENO is ELECTRIC. You press a button—on the steering wheel, on the floor or side, or anywhere you wish and the SIRENO operates. That's all.

¶ The current to operate the little MOTOR (which is the "heart" of the SIRENO) is taken right from your IGNITION BATTERY, without interfering with its other duties or if you have only a magneto for sparking your engine, from six or eight dry cells or a six or eight volt storage battery.

¶ THEREFORE because it is [illegible] the [illegible] is not dependent upon the speed of your engine. It can operate just as well in a crowded street or coasting down hill with your engine shut off, as otherwise. It is absolutely independent of your engine and therefore not subject to any of the disadvantages incident to other types which rely upon the engine for their power.

¶ There are no flexible shafts or friction pulleys to get out of order.

¶ The motor is Ball Bearing because of this feature the motor picks up instantly.

¶ The motor is dust and water proof.

¶ No wearing of the bearings.

¶ No lubrication is necessary; the balls are packed in a lubricant.

¶ The SIRENO weighs only four pounds.

¶ Small and compact; it can be attached to any part of the car.

¶ There is nothing to get out of order. No vibrator to adjust.

¶ Send for our literature if you wish, but you will be much better pleased if you send for the SIRENO itself. It is very eloquent. Only $35.00 mailed to-day brings it. There is no risk.

¶ Supplied in any plating or finish to match lamps, etc., if desired.

¶ Remember—it operates from your ignition battery—six or eight dry cells or a six or eight volt storage battery.

One-Quarter Actual Size.
Weight, Complete, Four Pounds.

THE SIRENO CO.

41 Cortlandt Street New York, U. S. A.

A

Necessity

NOT AN

Accessory

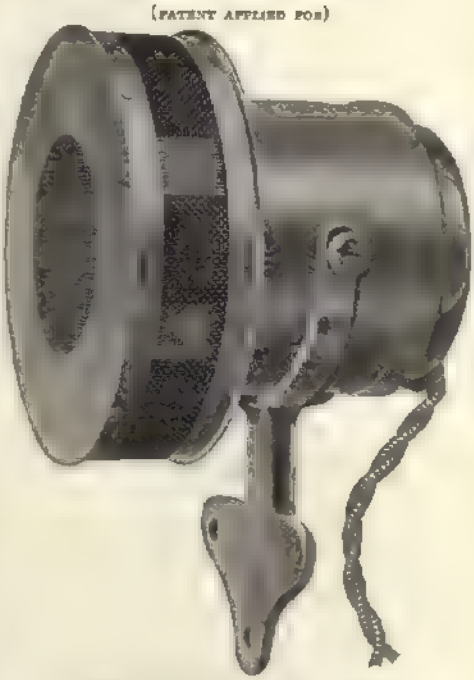
$35 Complete

THE

SIRENO

SIRENO

(PATENT APPLIED FOR)



ONE-HALF ACTUAL SIZE
WEIGHT COMPLETE, 4 POUNDS

can be installed in ten minutes by anyone; the only tools necessary being a screw driver and a pair of hands.

THE IDEAL SIGNAL for

CARS MOTOR BOATS

BALL BEARING THROUGHOUT

NO FLEXIBLE SHAFT—NO FRICTION PULLEY

Operates by simply pushing a button, from any Ignition Battery (storage or dry cells) or from any **direct** current Dynamo.

There is nothing to get out of order No vibrator to adjust.

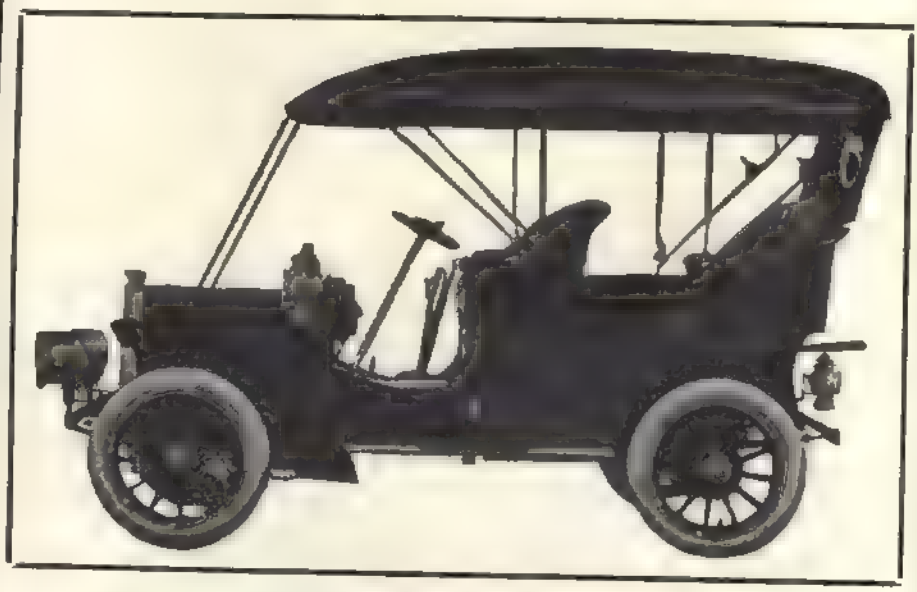
Built of Solid Brass and Aluminum.

For Sale By All Supply Houses or

THE SIRENO COMPANY

39 CORTLANDT STREET, NEW YORK CITY

The Springfield Metal Body Co.



LARGEST MANUFACTURERS OF HIGH GRADE ALUMINUM TOURING, RUNABOUT, LIMOUSINE, AND LANDAULET BODIES IN THE WORLD.

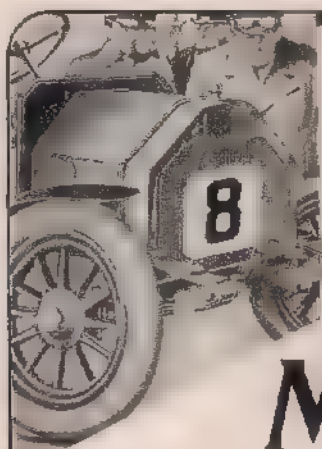
We will be pleased to correspond with manufacturers as to their requirements.

We are now closing contracts for 1908 delivery.

Write for information and prices.

SPRINGFIELD METAL BODY COMPANY,

SPRINGFIELD, MASS.



The Oil for the Engine That Wins

Vacuum MOBILOIL is *the* oil for crucial engine tests that depend on perfect lubrication as much as on the merit of the engine itself. MOBILOIL makes the selection of the right oil an easy certainty instead of a matter of expensive experiment.

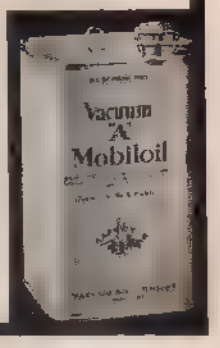
VACUUM

MOBILOIL

is compounded in five different grades, each exactly adapted to a particular type of automobile engine. The use of the special grade for *your* engine avoids the possibility of expensive mistakes in lubrication, lowers cost of maintenance and reduces wear.

A valuable booklet listing every automobile made and giving correct instructions for its proper lubrication will be sent free on application. Also contains track records to date, and other valuable information. MOBILOIL in barrels and in cans with patent pouring spout is sold by dealers everywhere. Manufactured by

VACUUM OIL CO., Rochester, N. Y.



AMERICAN OIL COMPANY
AMOCO
AUTOMOBILE
OILS
AND GREASES
JACKSON, MICHIGAN.

THE "AMOCO" LINE

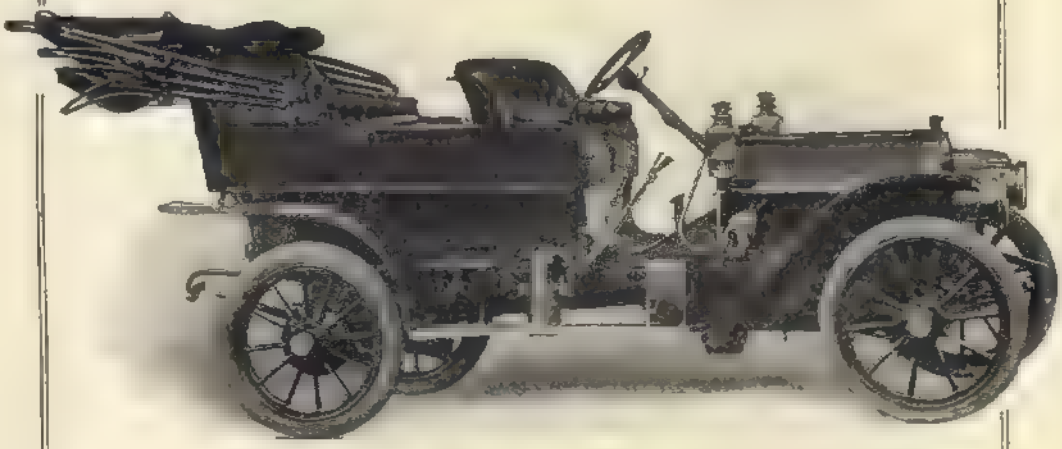
Stands the test through thick and thin. The best oils made, so put them in

Your Automobile

Anti-Carbon Automobile Oil—Our Leader.
Amoco Automobile Oil, Light, Medium, Heavy, Extra Heavy and Steam.
" Transmission Oils and Compounds.
" Solid Oil, Cup or Graphite Grease and Varnish Soap.

Supply Houses and Garages apply for our liberal offer.

The Wayne at $2500 Ushers in a New Era of Value-Giving in Automobile Manufacture



Wayne

THIRTY

¶ To know how much value you are getting in the Wayne at $2500 you must turn to the cars of higher price.

¶ You must ride in the Wayne—and ride in the cars of higher price.

¶ You must operate the Wayne—and operate the cars of higher price.

¶ You must experience the extraordinary efficiency of the Wayne engine; you must put it through a drastic course of tests under any and all conditions.

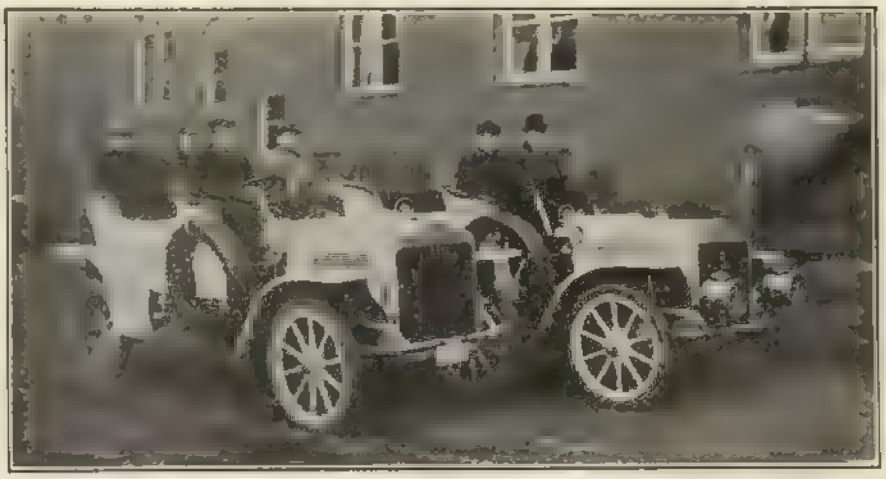
¶ You must enjoy the immensely smooth, silent riding qualities of the car till the conviction is fixed upon you that you have never ridden in any car at any time that pleased you more thoroughly.

¶ Then, and not till then, will you realize what superb value you get in the Wayne at $2500, with "nothing to buy but the license."

THE WAYNE AUTOMOBILE COMPANY
DETROIT, MICHIGAN

THE INCOMPARABLE WHITE

THE CAR FOR SERVICE



White Scores the Usual 100 Per Cent.

The two White Steamers entered in the Bay State Automobile Club Endurance Run, February 22nd, finished with perfect scores. Although the conditions of the run were not sufficiently severe to eliminate as large a proportion of the contestants as is usual, it should be noted that the White was the only make of those entering more than one car which brought through all of its cars with perfect scores.

In this respect the run resembles:

1. The Quaker City Motor Club Endurance Run, January 1 2, where the single White entry was the only car to make a perfect score, thus winning the contest from the 27 gasoline cars which competed against it.
2. The Chicago Motor Club Endurance Run, November 25 28, where the White was the only make which brought through all of its cars without road penalties.
3. The 1907 Glidden tour wherein the White was the only make represented by three or more cars which was not penalized.

This regularity of the White performance, as compared with the extreme irregularity of the performance of other cars, has established beyond question the superior reliability of the White.

Write for Literature.

THE WHITE COMPANY

CLEVELAND, OHIO.

New York City, Broadway at 62d Street
San Francisco, 1430 Market Street
Philadelphia, 829-33 North Broad Street

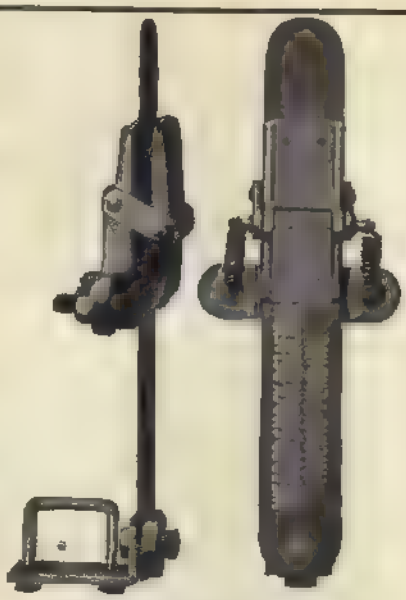
Boston, 320 Newbury Street
Chicago, 240 Michigan Avenue
Cleveland, 407 Rockwell Avenue

THE WEEBER Shock Reliever

which is the lightest, the most efficient and durable device on the market, regardless of price. They are guaranteed to give the best of satisfaction or will refund your money.

2 Relievers for Touring Cars and Runabouts - - -	$16.50
4 Relievers for Touring Cars and Runabouts - - -	30.00
2 Relievers for Trucks and extra heavy Cars - - -	22.00
4 Relievers for Trucks and extra heavy Cars - - -	40.00

Black Finish Standard



WEEBER Wheel Puller

This is without a doubt the only puller on the market that will pull the tightest of wheels without injury to wheel or finish. It is guaranteed to do the work in every particular and with ordinary care will last for years.

Price, $16.50.

The WEEBER MUFFLER

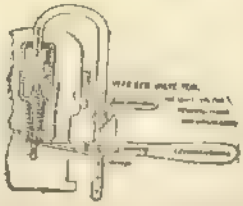
Has been on the market for many years and has been used by some of the foremost automobile manufacturers as well as for stationary and marine work. The muffler is very durable and free from back pressure.

PRICES

1 inch pipe size	$10.00	2½ inch pipe size	$25.00
1¼ " " "	13.00	3 " " "	30.00
1½ " " "	16.00	4 " " "	40.00
2 " " "	20.00		

THE WEEBER VALVE TOOL

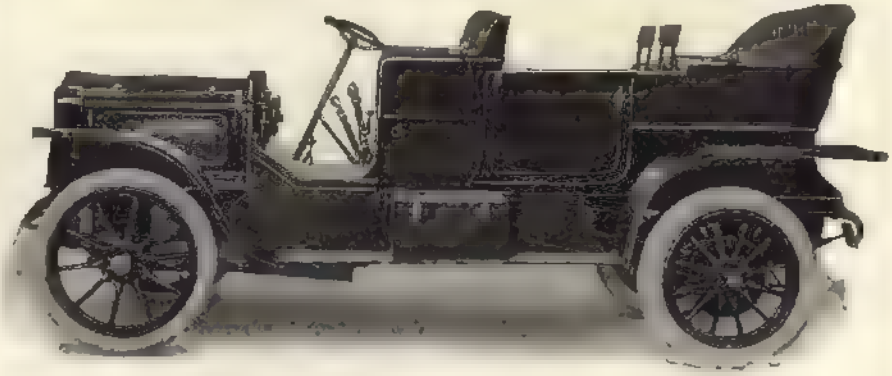
The tool is the handiest one for removing and placing valves, as well as a very useful tool for removing and placing tires. It will hold where placed due to ratchet as shown in cut. Will guarantee it in every particular. Price, $2.50.



C. F. Weeber Mfg. Works, Albany, N. Y.

Agents Wanted.

THE INCOMPARABLE
WHITE
THE CAR FOR SERVICE



WRITE FOR THE NEW WHITE CATALOG

We would like to send a copy of our new catalog to everyone interested in any phase of motoring. Everyone should read, for example, the description of the White generator, that wonderful steam-making device wherein the water is at the top and the steam at the bottom and wherein none of the conditions of the ordinary boiler are present. The reference to the continuous success of the White in all forms of competition during the last seven years will also prove of interest. Also, we invite attention to the detailed specifications of our two models—one of 30 horse-power and the other of 20 horse-power—with touring car, runabout, limousine and landaulet bodies.

A postal to us brings a copy.

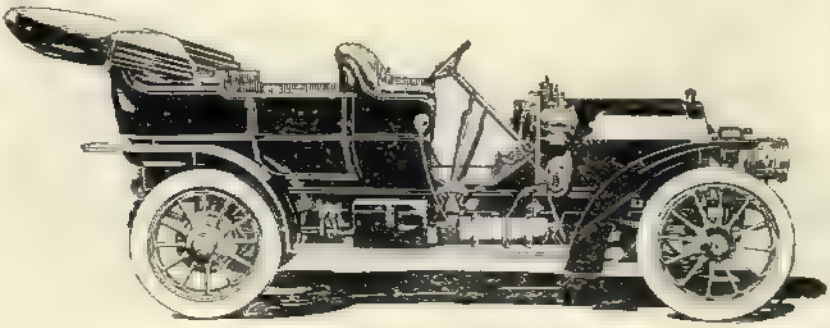
THE WHITE COMPANY
CLEVELAND, OHIO

PENNSYLVANIA

TYPE "C" 50

$2800

With Magneto $3000



Valve-in-head Motor, Chrome Nickel Steel, Annular Bearings, Touring Cars, Roadsters, Touring Roadsters, Limousines.

PENNSYLVANIA AUTO MOTOR CO., - Bryn Mawr, Pa.

PENNSYLVANIA

DISTRIBUTORS

Los Angeles, Cal. ..... Greer-Robbins Co. 1501 1505 S. Main Street
San Francisco, Cal. ..... City Hall Automobile Co. 56 Fulton Street
Boston, Mass. ..... Frederick E. Randall Co. 248 Columbus Avenue
Chicago, Ill. ..... Hamilton Automobile Co. 12[illegible]-20 Michigan Avenue
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Brooklyn, N. Y. ..... Charles E. Batt 1378 Bedford Avenue
New York City ..... Archer & Co., 1597 Broadway
Spokane, Wash. ..... Dulmage-Rose Automobile Co. 12[illegible] Second Avenue
Philadelphia, Pa. ..... West Stillman Motor Car Co. [illegible]53 N. Broad Street
Baltimore, Md. ..... Rice's Garage, North and Madison Avenues
St. Louis, Mo. ..... Lakedel Automobile Co. 5145 De Mar Boulevard
Buffalo, N. Y. ..... Brunn's Carriage Manufactory, 1140 Main Street

THE INCOMPARABLE WHITE

THE CAR FOR SERVICE

A Touring Car in the True Sense of the Term

The man who gets the most pleasure from his touring car is not the man who limits his touring to the macadam roads; for the most interesting sections of the country and those of the greatest natural beauty lie, for the most part, beyond the regions of improved highways. For that reason there is no quality of a motor car more important than the ability to traverse bad roads.

In unique degree, the White possesses the qualities of a "bad roads" car. Owing to the perfect flexibility of the engine, the White tourist can accommodate the speed of his car, yard by yard, to the condition of the road, speeding up on each little stretch of good road, and slowing down for each hole and "thank-ye-ma'am"—without shifting of gears or any manipulation except of the throttle. The tremendous pulling power of the White engine under all conditions means immunity from getting stuck in the mud or sand. Running through deep water, as in fording streams, is easy for a White. And as for climbing grades in mountainous regions—there is no other machine which can approach the White in hill-climbing qualities.

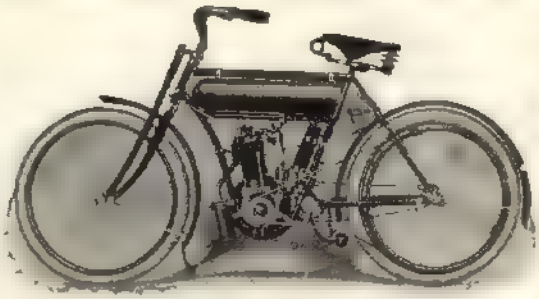
DRIVE A WHITE STEAMER AND SEE THE COUNTRY

THE WHITE COMPANY

CLEVELAND, OHIO

New York City, Broadway at 62d Street
San Francisco, 1480 Market Street
Philadelphia, 629-33 North Broad Street
Boston, 330 Newbury Street
Chicago, 240 Michigan Avenue
Cleveland, 407 Rockwell Avenue
Pittsburg, 138-148 Beatty Street

1908
Yale-California
MOTOR CYCLE



"A MOTOR CYCLE IN EVERY SENSE OF THE WORD"

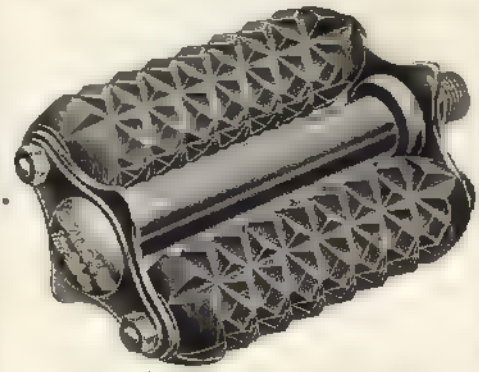
A card will bring our catalogue and agents' proposition. Better learn what Consolidated service means.

The Consolidated Manufacturing Co.
TOLEDO, OHIO

ANNOUNCEMENT

—OF—

The No. 3 Standard Motorcycle Pedal



No. 3 Standard Motor Cycle Pedal

A STRIKING DEPARTURE IN DESIGN AND CONSTRUCTION

Note the excellent lines and proportions.

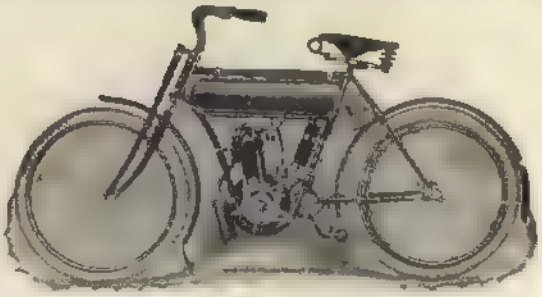
Special Features:—Large bearings, same size on both ends, insuring perfect running qualities; balls 5/32″ diameter; axles ¼″ stock; broad rubber tread deeply corrugated, giving firm foothold—foot cannot slip.

Let Us Send You Full Particulars.

THE STANDARD COMPANY, Torrington, Conn.

1908

Yale-California MOTOR CYCLE



"A MOTOR CYCLE IN EVERY SENSE OF THE WORD"

Yale and Snell Bicycles
Hussey Handle Bars
Consolidated service is the Best

Send for Catalogue and Circular describing the new Consolidated Hanger

The Consolidated Manufacturing Co.
1710 Fernwood Ave., TOLEDO, OHIO

No. 3 Standard Motor Cycle Pedal

The Standard Line
of Bicycle and Motorcycle Parts

is the choice of the wise manufacturers because of their unvarying excellence. Invariably either "BRIDGEPORT," "STAR," or "STANDARD" PEDALS are found on all high-grade bicycles; while for motorcycle use nothing can surpass the No. 3 "STANDARD" PEDAL. We also manufacture SPOKES and NIPPLES in the following grades: "Diamond E," "Sunbeam," "No. 2 and No. 6," "A," "Special" and "Special A." These are boxed 100 in a box. Our "SAGER" and "STAR" TOE CLIPS are noted for their special finish and workmanship.

Write for full information regarding our line.

THE STANDARD COMPANY
TORRINGTON, CONN., U. S. A.

The

Thor

Motorcycle

You will know it when you see it.

You will appreciate it when you ride it.

There are models to suit all:

SINGLE CYLINDER, DOUBLE CYLINDER and MAGNETO MODELS

Quality Predominates—Finish Excels

Dealers should remember that variety and superiority stimulate trade. If interested in Motorcycles write us today.

Aurora Automatic Machinery Co. = = Aurora, Ill.

Empire Motor Cycle Tires

Try them; you will find they are the Best Easiest to Handle "Wear Longest"

EMPIRE AUTOMOBILE TIRE CO.

TRENTON, NEW JERSEY, U. S. A.

NEW YORK—73d St. and Broadway 148 Chambers St.
CHICAGO—20 La Salle St.
BOSTON—292 Devonshire St.
BUFFALO—724 Main St.
JACKSONVILLE, FLA.—Savell Rubber Co.
PHILADELPHIA—Penn Auto Supply Company
PROVIDENCE—Waite Auto Supply Company
SEATTLE, WASH.—Fobes Auto Supply Company
DENVER, COL.—Denver Auto Goods Company
ATLANTA, GA.—Dunham Rubber Co.

CHIPAWAY HATCHETS.

KEEN KUTTER

Products were awarded the

GRAND PRIZE

at the

St. Louis Exposition, 1904

by the International Jury of Awards in competition with the world

GRAND PRIZE

AWARDED TO

Simmons Hardware Co., Inc.

St. Louis, Mo., U.S.A.

FOR

[illegible]

OF ALL

KEEN KUTTER PRODUCTS

Department of Manufactures

GROUP 41

CHIEF

The International Jury of Awards at the St. Louis Exposition awarded the

GRAND PRIZE

to the Celebrated

KEEN KUTTER

CUTLERY

in competition with the world and for all-round excellency

GOLD MEDAL

GOLD MEDAL

KEEN KUTTER and WALDEN

POCKET KNIVES

were given the

HIGHEST AWARD

at the Lewis & Clark Exposition at Portland

in competition with the United States.

KEEN KUTTER

GOODS

have invariably taken the

HIGHEST HONORS

at every Exposition at which they have been exhibited

in competition with the world.

TOOL "INSURANCE."

With every Tool or piece of Cutlery in the ***KEEN KUTTER*** line we sell to a Merchant, is included "TOOL INSURANCE." In other words, the ***KEEN KUTTER*** Trade Mark on any tool or piece of cutlery means not only that it is the best we are able to turn out, and that it has undergone the strictest inspection, but that in the event of any possible flaw or dissatisfaction on the part of the user, it is "insured" by the Simmons Hardware Company on our liberal guarantee.

That's why merchants can afford to recommend ***KEEN KUTTER*** Tools and Cutlery so highly. They stay sold and make satisfied customers.

E. C. SIMMONS

KEEN KUTTER

TRADE MARK

ST. LOUIS U.S.A.

TOOLS AND CUTLERY.

STANDARD OF AMERICA.

"THE RECOLLECTION OF QUALITY REMAINS LONG AFTER THE PRICE IS FORGOTTEN"—E.C. SIMMONS

TRADE MARK REGISTERED.

(Miniature Cuts of)

POSTER CARDS.

Furnished on Application.

No. 1001—*KEEN KUTTER* Poster Card.

Printed in 3 colors.
Size 13x16 inches.
Furnished to customers buying our *KEEN KUTTER* goods.

STORE SIGN ASSORTMENTS.

Furnished on Application.

No. 2000 Assortment Contains One each of the following:

No. 1000—Freezer Poster Card.
No. 1001—Trade Mark Poster Card.
No. 1029—Coal Heater Poster Card.
No. [illegible]—Wood Heater Poster Card.
No. [illegible]—Recollection of Quality Store Sign.
No. [illegible]—Parkey [illegible]
No. [illegible]—Lawn Mower Store Sign.
No. [illegible]—Pocket Knife Show Case Card.
No. [illegible]—Scissors and Shears Show Case Card.
No. 1013—Tools Store Sign.

No. 2001 Assortment Contains One each of the following:

No. [illegible]—Leader Baby Carriage Store Sign.
No. [illegible]—Leader Refrigerator Store Sign.
No. [illegible]2—Siberia Refrigerator Store Sign.
No. [illegible]—Banner Baby Carriage Store Sign.
No. [illegible]5—Davenport Filter Store Sign.
No. [illegible]—Sewing Machine Poster Card.

No. 2002 Assortment Contains One each of the following:

No. 1003—Trade Mark Poster Card.
No. 1005—Recollection of Quality Store Sign.
No. 1013—Tools Store Sign.
No. [illegible]—Snow Collection [illegible]
No. [illegible]—Credit Fixture.
No. [illegible]—Tinware Store Sign.
No. 1018—Scissors and Shears Store Sign.
No. 1011—Razor Show Case Card.
No. 1032—Fire Store Sign.

No. 2003 Assortment Contains One each of the following:

No. [illegible]—Freezer Poster Card.
No. [illegible]—Trade Mark Poster Card.
No. 1005—Recollection of Quality Store Sign.
No. [illegible]—Lawn Mower Store Sign.
No. [illegible]—Scissors and Shears Store Sign.
No. 1013—Tools Store Sign.
No. 1027—Tinware Store Sign.
No. 1032—Fire Store Sign.

SHOW CASE CARDS.

Furnished on Application.

No. 1009—*KEEN KUTTER* Pocket Knife Show Case Card.

Size [illegible] inches.

Printed in [illegible] colors: Yellow, Red and Black.

Lettering in Black.

No. 1010—*KEEN KUTTER* Scissors and Shears Show Case Card

Size [illegible] inches.

Printed in 3 colors: Yellow, Red and Black.

Lettering in Black.

No. 1011—Barbers' Pet Razor Show Case Card.

Size 3x18 inches.

Printed in colors, White Card; Lettering in Olive Green and Maroon.

The above three Show Case Cards can also be used as Street Car Signs.

No. 1059.

***KEEN KUTTER* Safety Razor Show Case Card.**

Size [illegible] inches.

Printed in [illegible] colors: Yellow, Red and Black.

Lettering in Black.

No. 1060.

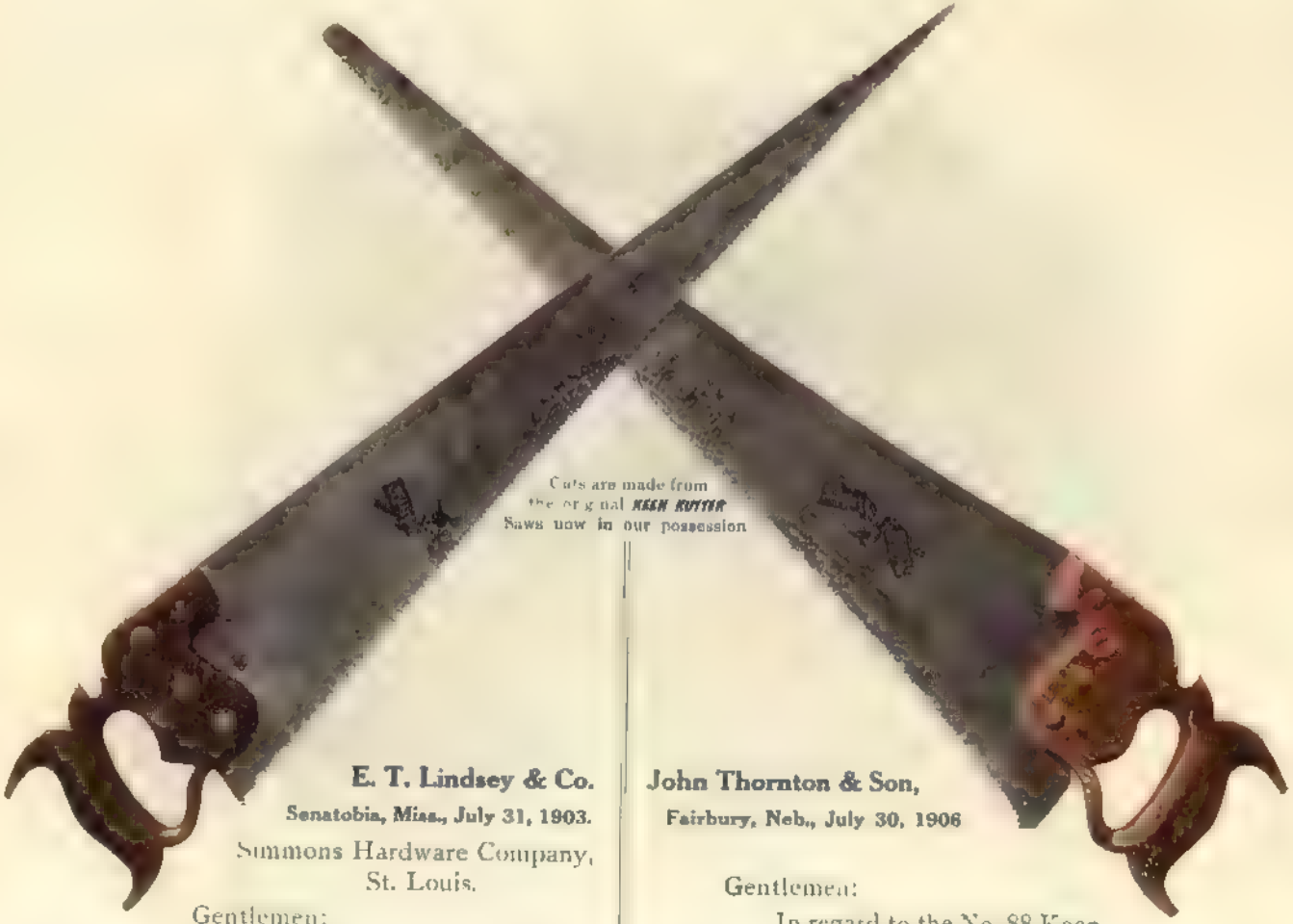
Enders' Dollar Safety Razor Show Case Card.

Size 6x12 inches.

Printed in 3 colors.

KEEN KUTTER SAWS.

KEEN KUTTER SAWS, USED FOR 12 AND 15 YEARS.



Cuts are made from the original *KEEN KUTTER* Saws now in our possession

E. T. Lindsey & Co.

Senatobia, Miss., July 31, 1903.

Simmons Hardware Company,
St. Louis.

Gentlemen:

In reply to the enclosed letter, the man who used the Saw is named N son Smith, who requested me to say that he used the saw for 12 years, and that it was the best saw he had ever used out of 30 years' experience as a Carpenter. It gave perfect satisfaction in every respect.

Yours very truly,

E. T. LINDSEY & CO.

John Thornton & Son,

Fairbury, Neb., July 30, 1906

Gentlemen:

In regard to the No. 88 Keen Kutter Hand Saw, wish to state that I traded for it 15 years ago with another carpenter. Do not know how long he had it. In my 35 years' experience as a carpenter, I have never used a better saw than this one and others purchased since seem to be just as good. I feel that I can recommend them to fellow Mechanics with confidence. Yours very respectfully,

A. B. KAUTZMAN.

"The RECOLLECTION of QUALITY Remains Long After the PRICE is Forgotten." F. C. SIMMONS

TRADE MARK REGISTERED

KEEN KUTTER

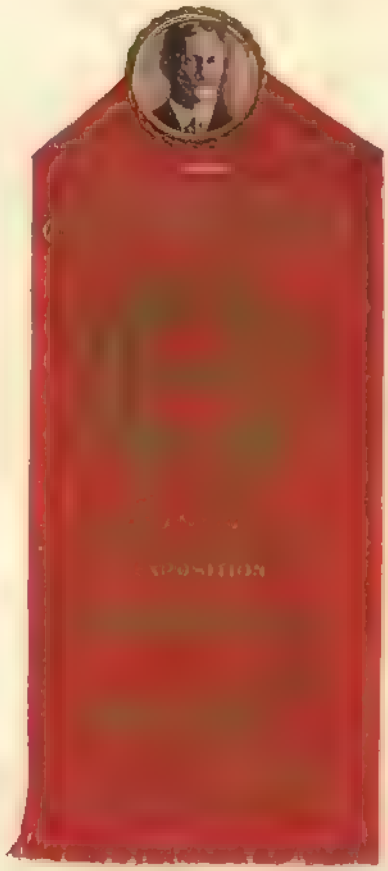
Products were awarded the

GRAND PRIZE

at the

St. Louis Exposition, 1904

by the International Jury of Awards in competition with the world



The International Jury of Awards at the St. Louis Exposition awarded the

GRAND PRIZE

to the Celebrated

KEEN KUTTER

CUTLERY

in competition with the world and for all-round excellency

GOLD MEDAL

GOLD MEDAL

GRAND PRIZE

AWARDED TO

Simmons Hardware Co., Inc.

St. Louis, Mo., U.S.A.

FOR

[illegible]

OF ALL

[illegible]

Department of Manufactures

[illegible]

KEEN KUTTER

and WALDEN

POCKET KNIVES

were given the

HIGHEST AWARD

at the Lewis & Clark Exposition at Portland

in competition with the United States.

KEEN KUTTER

GOODS

have invariably taken the

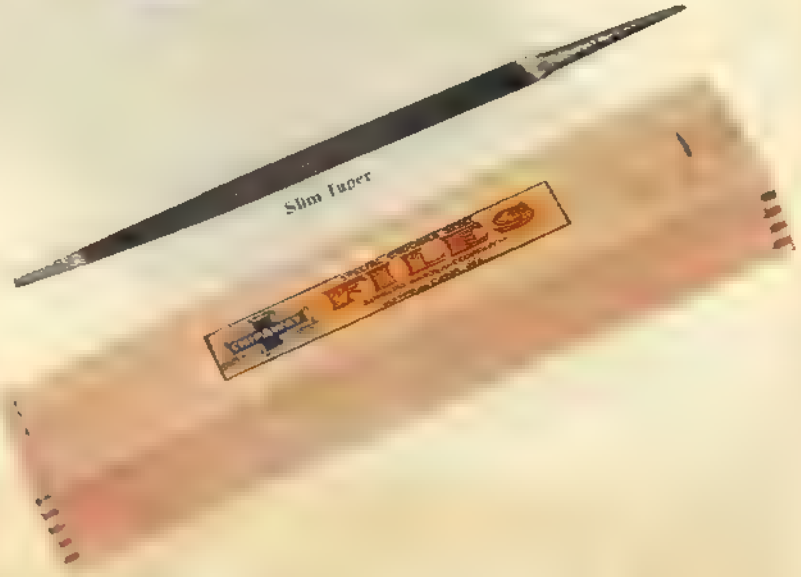
HIGHEST HONORS

at every Exposition at which they have been exhibited

in competition with the world.

KEEN KUTTER FILES.

CHIPAWAY FILES.



POLISHED WOOD CLOCKS.

(Made by Sessions Clock Co.)

LIBERTY.

Black Polished Wood Case; Green Metal Columns Metal Feet, Bases and Caps, Bronze Finish; 10 inches High, 9 inches Wide; 5 inch American White Dial; Arabic Figures. Each

Liberty—8 DAY; HALF HOUR STRIKE ON CATHEDRAL BELL $6.00

KINGSTON

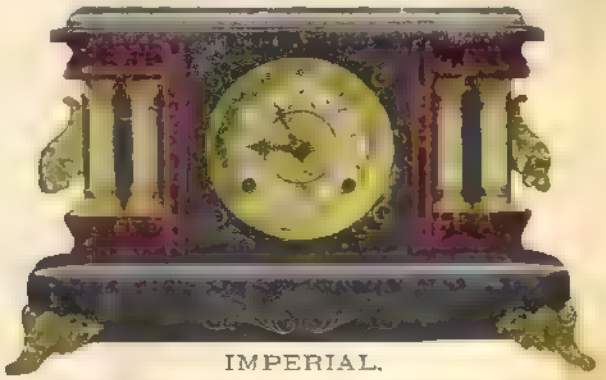
Black Polished Wood Case, Green Metal Columns, Metal Feet, Bases, and Caps, Bronze Finish; 10 inches High, 12 inches Wide; 5 inch American White Dial Arabic Figures. Each

Kingston—8 DAY; HALF HOUR STRIKE ON CATHEDRAL BELL $6.80

MONTVILLE.

Black Polished Wood Case; Green Metal Columns; Rococo Design; Metal Ornaments, Feet, Bases and Caps, Bronze Finish; 10¾ inches High, 14½ inches Wide; 5½ inch American White Dial, Arabic Figures. Each

Montville—8 DAY; HALF HOUR STRIKE ON CATHEDRAL BELL $7.20



IMPERIAL.

Black Polished Wood Case; Imitation Onyx Columns; Metal Ornaments, Feet, Bases, Caps and Rococo Design Sash, Gilt Finish, Red Marbleized Wood Supports; 11¼ inches High, 18 inches Wide; 5 inch American Perforated Metal Dial, Gilt Finish, Arabic Figures. Each

Imperial—8 DAY; HALF HOUR STRIKE ON CATHEDRAL BELL $9.00

WOODMONT.

Black Polished Wood Case, Green Marbleized Wood Supports; Metal Ornaments, Feet, Bases and Caps, Bronze Finish; Rococo Design Sash; Gilt Finish; 11 inches High, 16½ inches Wide; 5½ inch American Perforated Metal Dial, Gilt Finish; Arabic Figures. Each

Woodmont—8 DAY; HALF HOUR STRIKE ON CATHEDRAL BELL $7.60

HANOVER

Black Polished Wood Case, with Dome; Imitation Onyx Columns, Metal Ornaments Feet, Bases, Caps and Rococo Design Sash, Gilt Finish; 11¼ inches High, 17 inches Wide; 5 inch American White Dial with Fancy Metal Center, Gilt Finish; Roman Figures. Each

Hanover—8 DAY; HALF HOUR STRIKE ON CATHEDRAL BELL $8.00

One in a Case. Weight Each about 15 lbs.

KEEN KUTTER HAY, MANURE AND SPADING FORKS.

KEEN KUTTER RAKES, HOES AND POTATO HOOKS.

ADVERTISING WAGON UMBRELLA.

Per Dozen

No. 10—ADVERTISING WAGON UMBRELLA with *KEEN KUTTER* Trade Mark printed in Red on three WHITE Panels, and CUSTOMER'S ADVERTISEMENT Printed on the Three remaining YELLOW Panels Complete with Improved Wagon Fixtures, Spreads 70 inches 6 Heavy Detachable Steel Ribs 40 inches Long Yellow and White Combination of Colors only can be furnished. The Top Notcher is especially Designed to Cover the Hooks and Protect the Cover The Ribs and Stretcher are made of Special Tempered Steel; Removable Cover of Heavy Drill, which is More Serviceable than Duck; The Metal End Socket 1¾ inches Long, is clinched to Rawhide and then Sewed on the Cover The Pole is 1⅛ inches in Diameter and is made of extra selected Hardwood, Oil Finished. All Metal Parts are Japanned; Weight per dozen about 72 lbs. $24.00

CUSTOMER'S ADVERTISEMENT.

The customer has the privilege of Selecting any Advertisement that he wishes (provided it DOES NOT CONTAIN OVER 6 WORDS OR 40 LETTERS), which will be printed on the 3 remaining Yellow Panels of the Umbrella WITHOUT EXTRA CHARGE.

Note carefully that this does not mean that he can have three DIFFERENT ADVERTISEMENTS printed one on each of the three Panels, but that he can have ONE ADVERTISEMENT ONLY printed on all Three Panels alike.

NOTE—No 10 Umbrella is the same as our No 6, except for the additional ADVERTISING FEATURE

The Mark

E. C. SIMMONS
KEEN KUTTER
TRADE ST. LOUIS MARK
U.S.A.

AND

The Motto

"The Recollection of QUALITY Remains long after the PRICE is forgotten." E. C. Simmons

TRADE MARK REGISTERED

KEEN KUTTER PUNCHES, NAIL SETS AND COLD CHISELS.

KEEN KUTTER PLIERS AND PINCERS.

—4035—

TRADE MARK: "WONDER," REGISTERED.

"WONDER"* FIVE MINUTE ICE CREAM FREEZER.

THE UP-TO-DATE FREEZER OF AMERICA.

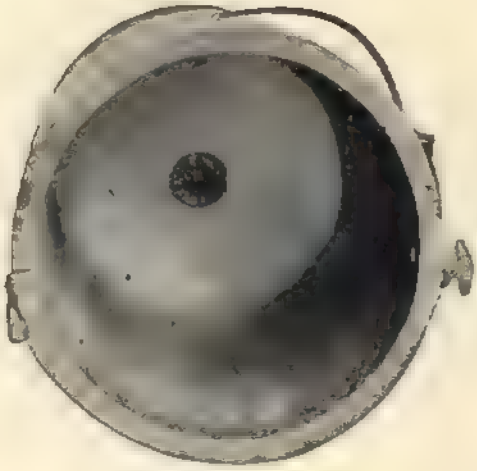
Dealers who have the Reputation of selling only the best goods, handle the "Wonder." The best constructed, easiest operated, and best selling Freezer made.

ALL LIVE DEALERS SELL THE "WONDER"*.

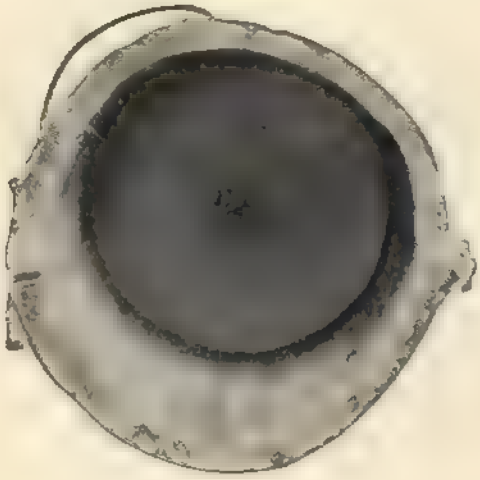
BECAUSE—

It is the BEST FREEZER on Earth.
It Freezes a Smooth Quality of Ice Cream in Less time than any other.
It has an honest Double Motion.
Our Guarantee is Back of Every One of Them.
The Price Places it within Reach of the "Masses."

FREEZER TUBS.



THE "WONDER."
Made of Pine—Used two years.



THE OTHER KIND.
Made of Cedar—Used two years.

There is all the Difference in the World in the Quality of Freezer Tubs made by the Various Manufacturers, but—**we only want to tell you and show you why Ours are Better than the Best of other makes.**

The Wonder White Mountain and Arctic Freezer Tubs are made of Carefully Selected Second Growth White Pine that is thoroughly Saturated with Paraffine and Other Chemicals that render them Proof against the action of Ice, Salt and Water. The Staves are held perfectly tight by ¾ inch Galvanized Iron Hoops, which are **Double-Riveted and Swaged to the Tub and CANNOT COME OFF.**

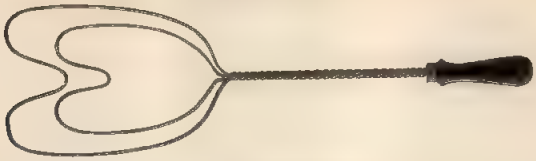
By a Special Patented Process the Bottom of the Tub is made Flush with the Bottom of the Staves, thus Protecting the Edges from Chipping or Breaking. Patented Features that make our Tubs Stronger and Better than others. **Our Tubs will not Shrink, Warp or Leak. The Hoops will Not Come Off.**

The Hinge and Fastenings are Bolted to the Tubs. CANNOT WORK LOOSE. All the above Features are Distinctly Favorable to the Wonder White Mountain and Arctic Freezers and Contrast Sharply with the Faulty **or Deficient Construction of other makes.**

Above we Illustrate Two Tubs that were each in use about Two Years before the Photographs were taken. Note the Almost Perfect Condition of the Wonder PINE Tub, and the Dilapidated Condition of the other one, which is made of cedar. All our Tubs are made of PINE. Most all other makes are cedar.

CARPET BEATERS, CHAMOIS SKINS, ETC.

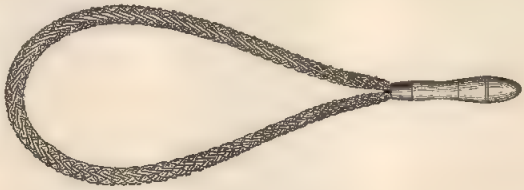
CARPET BEATERS.



Per dozen

Champion, Coppered Steel Wire, Hardwood Handle.... .... $2.00

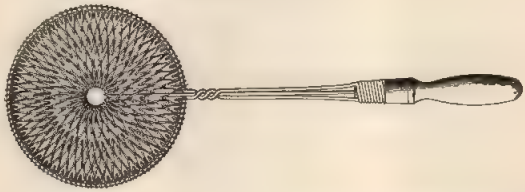
One dozen in a bundle.



Per dozen

Crescent, made of 24 Wires, spring steel, Galvanized, Patent Hollow Braided Cable $4.00

One dozen in a bundle.



Per dozen

Perfect, Tinned Spring Steel, Coiled Wire, Hardwood Handle..... $4.00

CHAMOIS SKINS.

Oil Tanned, First Quality.

Nos.	A4	A6	A12	A14
Inches	10x13	12x14	16x21	18x23
Per Dozen	$2.30	3.20	7.80	10.60

FLOOR SCRUBBERS.

Ash Block, ⅞ in. Thick, $\frac{1}{16}$ in. Rubber, without Handles.

Length, in.	12	14	16
Per Dozen	$5.00	6.00	7.00

WINDOW CLEANERS.

The Rostek.

Per dozen

14 in. Galvanized, Double Rubber $4.00

One dozen in a box.

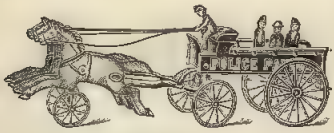
Peerless.

Inches	10	12	14	16
Per Dozen	$4.80	5.40	6.00	7.50

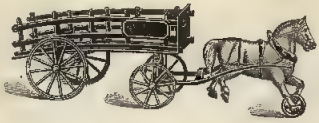
TOYS—Continued

MISCELLANEOUS IRON TOYS—Continued

We do not break packages



No. 86657 Police patrol, painted, length 13 inches, each in box . Per doz. $8 50



No. 86784 Truck without load, painted, length 14 inches Per doz. $8 64

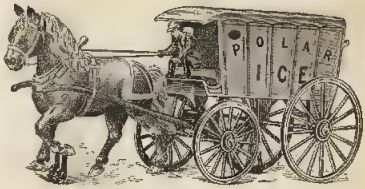
No. 86876 Phaeton, painted, length 16½ inches ....Per doz. $12 00

No. 86787 Express wagon, yellow painted wheels, green wagon box, length 15 inches... Per doz. $12 00

No. 86789 Coal wagon, handsomely decorated in silver and colors, length 14½ inches Per doz. $14 00

ROCKET RETURN BALLOON

No. 10 Rubber balloon with wood pipe for inflating, a very amusing toy . . .. Per doz. $1 60



No. 86791 Ice wagon, painted, length 14½ inches . Per doz. $15 00

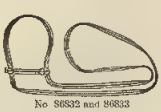
No. 86653 Dray, with 2 horses, painted in colors, length 16½ inches. ...Per doz. $18 00

No. 86656 Sled, with 1 reindeer, painted in colors, length 15 inches Per doz. $16 00

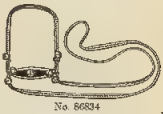
No. 86792 City express, with load, 1 horse, and driver, painted, length 17½ inches Per doz. $16 00

No. 86790 Panama dump wagon, steel, painted in bright colors, length 16 inches. ..... Per doz. $18 72

HORSE REINS



No. 86832 and 86833



No. 86834

No.		Per doz.
86832	¾ inch colored tape with cross-piece and 2 ⅞-inch nickel bells	$0 80
86833	Fancy colored oilcloth tape with cross-piece and 3 ⅞-inch nickel bells	1 50
86834	Same as No. 86833, with 2 snaps, 3 1⅜-inch and 4 ⅞-inch nickel bells	4 00

TOYS—Continued

RATTLES

We do not break packages

Nos 86826 and 86827 No 86073

No. 86826 Wood handle with 1¾ inch nickel-plated chime 12 in package Per doz. $0 70

86827 Same as No 86826, 2¼ inch chime 12 in package 1 30

86073 Tin rattle hammer shape, 4 styles assorted china mouthpiece with trumpet on one end 1 dozen assorted in box, not broken 80

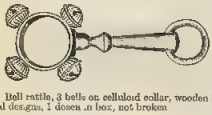
No. 86072 Polished tin rattle with bone handle 1 dozen in box, not broken Per doz. $0 60

No 86924 Gray rubber length 3½ inches, 12 in package Per doz. $0 90

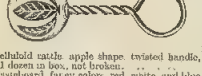
No 86828 No 86829

No. 86828 Wood handle with rubber ring and nickel-plated bell, 12 in package Per doz. $0 80

86829 Wood handle with rubber and leather ring and 4 bells, 12 in package 1 40



No. 86974 Bell rattle, 3 bells on celluloid collar, wooden handle, assorted designs, 1 dozen in box, not broken Per doz. $1 50



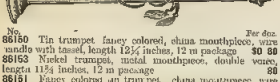
No. 86075 Celluloid rattle apple shape twisted handle, length 6 inches, 1 dozen in box, not broken Per doz. $1 60

86146 Pasteboard, fancy colors, red, white, and blue stripes and gold stars, length 5½ inches, 2 dozen in box, not broken 80

86147 Tin, wood mouthpiece, decorated with red white, and blue stripes, length 11 inches 12 in package 60

86148 Same as No 86147, length 19 inches, 12 in package 1 50

86149 Tin rattle horn, wood mouthpiece, decorated with red, white, and blue stripes length 15¾ inches 12 in package 1 50



No. 86150 Tin trumpet fancy colored, china mouthpiece, wire handle with tassel, length 12½ inches, 12 in package Per doz. $0 80

86153 Nickel trumpet, metal mouthpiece, double voice, length 11¾ inches, 12 in package 80

86151 Fancy colored tin trumpet china mouthpiece, wire handle with cord and tassel, length 16½ inches 12 in package 1 50

No. 86076 Celluloid rattle fruit shapes 6 in box assorted not broken Per doz. $1 60

No. 86077 Celluloid double rattle, length 5 inches, 6 in package Per doz. $1 60

No. 86078 Celluloid rattle, shape of a baby's head, long twisted handle 1 dozen in box, not broken Per doz. $1 60

No. 86679 Nickeled rattle with bone handle, cord and tassel, length 6 inches, 1 dozen in box, not broken Per doz. $1 60

No. 86830 Wood handle, with 8 small nickel bells Per doz. $2 60

86831 Same as No. 86830, with 8 large nickel bells 2 40

No. 86856 Rattle chime, lithographed, length 3¼ inches Per doz. $2 00

TRUMPETS

No. 86154 Nickel trumpet, metal mouthpiece, double voice, length 12¾ inches, 12 in package Per doz. $1 60

86162 Nickel trumpets 4 fancy styles, metal mouthpiece double voice, 12 in package 4 00

No. 86161 Tin trumpet, shape of trombone, metal mouthpiece, double voice, length 14 inches, 12 in package Per doz. $1 60

86394 Trombone in fancy colors, 3 reeds, full length 10 inches, 12 in package 4 00

86395 Trombone, same as No 86394 length 16 inches, 6 in package 8 00

No. 86925 Gray rubber, length 4 inches, 12 in package Per doz. $1 60

No. 86921 Gray rubber, length 6¾ inches, 12 in box $2 24

No. 86923 Same as No 86924, gray rubber, length 4½ inches 12 in box Per doz. $2 40

86524 Assortment of red rubber rattles, average length 5 inches, ½ dozen in package, not broken 4 60

No. 86080 Celluloid rattle, six shapes, animal form, long wooden handle, length 6 inches, 1 dozen in box, not broken Per doz. $4 00

No. 86681 Celluloid rattle, "Roly Poly Ball," painted dress, length 7 inches, 1 dozen in box, not broken Per doz. $4 00

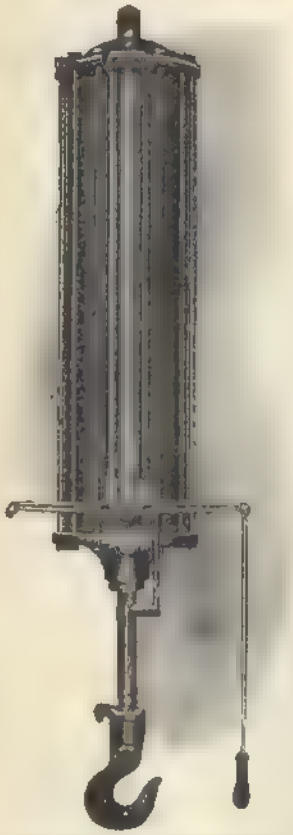
No. 86922 Gray rubber, length 5¾ inches, 12 in box Per doz. $2 24

No. 86163 Nickel trumpet, fox horn shape, metal mouthpiece, double voice length 8½ inches, 6 in package Per doz. $1 80

86164 Nickel, mouthpiece, chenille and silver cord, length 15 inches, 6 in package, not broken 4 00

No. 86168 Celluloid trumpet assorted shapes and assorted colors, celluloid mouthpiece 6 in package Per doz. $4 00

CHAMPION AIR HOISTS (Type No. 20)



Type No. 20, Large Size

This air hoist is the most advanced and practical for all classes of service to which air hoists are suitable, from the most delicate to the most severe. Its special features are all of real and practical value in actual service, and are not simply theoretical. It is economical in air consumption. It is accessible and simple. It is automatic both in lifting and in closing valve. It is safe. It is self-cleaning and self-oiling. It is adjustable both as to speed and lift. It is cushioned. It is high grade throughout.

Some of its points of merit.

Improved Adjustable Valve, combining in one body the inlet and exhaust functions, the speed adjustment, cut-off, and the safety check. Few parts; adjustable to wear; no stuffing-box.

Adjustable Speed Attachment regulates speed delicately from very slow to very fast, independently of the operating lever.

Automatic Cut-Off closes air supply at any required height, in connection with adjustable slip collar on piston rod; but at the same time allows operator to lift and lower and still have both hands free to handle his work. Saves air.

Safety Stop Device stops load from running down if air supply is broken.

Patent Exhaust Attachment. Only clean exhaust air can be drawn into top of cylinder when piston is lowering. Shuts out dirt and grit. Saves piston packing. We have exclusive use of this device.

Automatic Lubrication both of valve and piston rod. Oil placed in top of hoist lubricates the piston, and surplus oil is drained down to piston rod stuffing-box.

Accessible Design. Valve can be removed without removing heads and without unscrewing the inlet or exhaust pipes. No "screwed on" heads used; all heads removable by simply taking off a few nuts. Through rods from top to bottom strengthen the machine.

Cushioned Stop at top and bottom of cylinder prevents sudden stops and jars.

Universal Hook. Ball and socket type easily removable.

Polished Cylinder inside, insuring high efficiency, die pressed piston packing; brass piston rod gland.

Self-Closing Valves are supplied when specially ordered but are not suited to some duties.

BALANCED AIR HOISTS are sometimes desired for certain classes of work, and our Type No. 20 hoist may have the balanced air valve attachment at slightly increased cost. For usual service the balanced feature is not necessary.

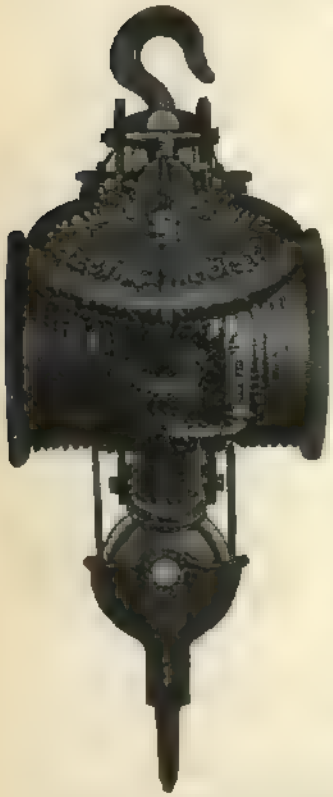
Inside Diameter of Cylinder	Lifting Capacities at Various Air Pressures (Actual) in Pounds			Approximate Shipping Weight, Packed		Cubic Feet Free Air used per ft. of Lift at 60 lbs.	Prices		Price per Foot Additional Lift over 4 ft. up to 8 ft.
	At 60 lbs.	At 80 lbs.	At 100 lbs.	4 ft. Lift	Per Foot Additional		Type No. 10 [illegible]	Champion Type No. 20 [illegible]	
3 in.	[illegible]	510	630	118 lbs.	10 lbs.	.30	$ [illegible]	$ 40.00	$ 4.50
4 "	[illegible]	900	1,130	160 "	20 "	.45	[illegible]	[illegible]	[illegible]
5 "	1,060	1,410	1,770	180 "	25 "	.68	45.00	50.00	5.50
6 "	[illegible]	2,040	2,740	240 "	31 "	.99	[illegible]	[illegible]	6.00
7 "	2,080	2,770	3,460	390 "	82 "	1.36	68.00	73.00	7.00
8 "	[illegible]	3,620	4,520	470 "	101 "	1.75	[illegible]	[illegible]	8.00
10 "	4,250	5,660	7,080	760 "	140 "	2.77	95.00	100.00	[illegible]
12 "	6,160	8,220	10,280	900 "	160 "	3.99	130.00	135.00	15.50
14 "	8,310	11,080	13,850	1,040 "	200 "	5.42	158.00	165.00	16.00
16 "	10,860	14,480	18,100	1,440 "	260 "	6.91	203.00	210.00	18.00
20 "	16,960	22,620	28,280	2,200 "	360 "	11.10	283.00	290.00	23.00
24 "	24,430	32,570	40,720	3,050 "	410 "	15.80	380.00	390.00	36.00

ALL HOISTS OVER 8 FT. STROKE TAKE SPECIAL PRICES

TYPE No. 10 AIR HOIST

Type No. 10 Air Hoist, although a cheaper type, is not the ordinary "plain hoist" generally supplied, but has a number of improvements which enables it to rank with many of the "hoists" or "extra" types on the market. The same quality of construction and workmanship is maintained as on Type No. 20 hoist. It has the patent exhaust attachment—the adjustable speed device and universal hook; but various parts used in No. 20 are not essential on many classes of plain work, are omitted. This hoist is similar in appearance to the Type No. 20, with the automatic cut-off omitted.

YALE & TOWNE ELECTRIC HOISTS



This hoist is designed to meet the growing demand for a simple, convenient and durable power hoist. It is made to withstand the roughest usage and to give satisfactory service in the hands of the inexperienced workman. It may be moved from one place to another as easily as a chain block, and used in any part of the works or yards where current is available. It greatly increases the efficiency of any hand crane, and its compactness enables it to be hung up and operated in the smallest space.

The material throughout its construction is the best obtainable, and all parts are made to gauge, thus securing complete interchangeability. The motor is placed above the oil-submerged parts of the hoist, and the motor shaft bearings prevent the possibility of oil entering the motor. The improved oiling devices preclude heating from overload or injury from the high temperatures usually existing near the ceiling. The load is taken on wire hoisting rope of the toughest steel, wound on grooved drums that are keyed direct to the main shaft. At the bottom hook the steel hoisting rope passes around an equalizing sheave, thereby balancing the strain. All parts under tension or subjected to transverse strain are of forged steel or wrought iron. The hoist always balances properly on its single upper hook, whether loaded or empty, and pulls in a true vertical line throughout the lift. The single swivel hook suspension allows the hoist to pull as well at any angle. The working parts are enclosed in an oil-tight iron casing, which excludes dust and water, at the same time insuring thorough lubrication

The load cannot run away even should the motor or brake become inoperative, an automatic cutoff prevents the load being hoisted too high

The hoist is operated from the floor, and is regularly equipped with a telescoping controller rod, enabling the workman to control it from a point in full view of his work, without depending on signals to a crane operator Pendant cords or chains will be furnished if preferred, but the rod controlling device gives more accurate control of the load and is so made that it cannot catch on any obstruction and start the hoist when traversing on a crane or runway

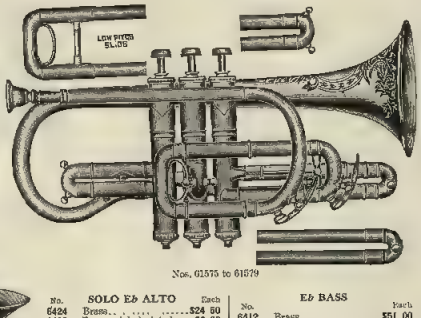
Capacity in Tons	Regular Hoist in Feet	Maximum Hoist in Feet	Pounds Pull with Maximum Load	Speed with Maximum Load in Feet per Minute	Price with Regular Hoist	Price with Maximum Hoist
1	10	30	40,000	20 feet	$ 475.00	$ 500.00
2	10	30	80,000	15 "	475.00	500.00
4	10	22	60,000	7½ "	485 00	510.00
5	10	30	150,000	15 "	900.00	950.00
6	10	15	60,000	5 "	500.00	540.00
10	10	15	150,000	7½ "	1,000.00	1,050.00

These hoists are suitable for constant use in handling loads up to the above capacities and may be used safely for lifting occasional loads 50 per cent heavier.

Net prices and detailed information will be furnished upon receipt of specifications.

BAND INSTRUMENTS

"Champion Light Action—Silver Pistons." With Water Key, Music Rack and German Silver Mouthpiece



Nos. 61575 to 61579

C CORNET

No.		Each
6450	Brass, with Bb crook...	$17 50
6451	Brass, with Bb crook, nickel-plated	19 50
6450½	Brass, with Bb crook, silver-plated satin finish	27 00
6451½	Brass, with Bb crook, silver-plated burnished	30 00

Eb CORNET

No.		Each
400	Brass	$16 00
401	" nickel plated	18 00
400½	" silver plated, satin finish	29 00
401½	" silver plated, burnished	26 00

Bb CORNET. AMERICAN MODEL TWO WATER KEYS

No.	Pearl Finger Buttons	Each
61575	Brass	$40 00
61576	Brass, nickel plated	42 00
61577	Brass, silver-plated, satin finish	49 00
61578	Brass, silver-plated, burnished	51 50
61579	Brass, silver-plated, burnished, gold bell and tips	56 00

Bb CORNET

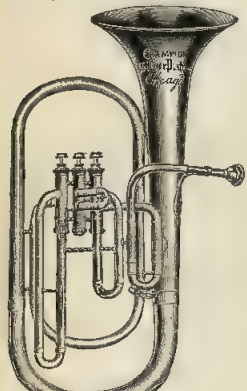
No.		Each
6302	Brass	$15 50
6303	Brass, nickel plated	16 00
6302½	Brass, silver plated, satin finish	24 50
6303½	Brass, silver-plated, burnished	27 00

Bb CORNET COURTOIS MODEL

No.	Double Water Key	Each
6380	Brass	$17 00
6381	Brass, nickel plated	19 00
6382	Brass, silver-plated, satin finish, with gold-plated bell	29 00
6383	Brass, silver-plated, finely burnished	29 00
6384	Brass, silver-plated, finely burnished, with gold-plated bell	33 00

Bb CORNET. AMERICAN MODEL DOUBLE WATER KEY

No.	Pearl Finger Buttons	Each
61560	Brass	$43 50
61561	Brass, nickel-plated	48 50
61562	Brass, silver-plated, satin finish	56 00
61563	Brass, silver-plated, burnished	58 50
61564	Brass, silver-plated, burnished, gold bell and tips	62 50



Nos. 6400 to 6401½

SOLO Eb ALTO

No.		Each
6424	Brass	$24 50
6425	Brass, nickel plated	28 00
6424½	Brass, silver-plated, satin finish	39 50
6425½	Brass, silver-plated, burnished	45 00

Eb ALTO

No.		Each
6404	Brass	$24 50
6405	Brass, nickel plated	28 00
6404½	Brass, silver-plated, satin finish	39 50
6405½	Brass, silver plated, burnished	45 00

Bb TENOR

No.		Each
6406	Brass	$28 00
6407	Brass, nickel plated	37 00
6406½	Brass, silver-plated, satin finish	46 00
6407½	Brass, silver-plated, burnished	53 00

Bb BARITONE

No.		Each
6408	Brass	$31 00
6409	Brass, nickel-plated	35 50
6408½	Brass, silver-plated, satin finish	59 00
6409½	Brass, silver-plated, burnished	59 00

Bb BASS

No.		Each
6410	Brass	$39 00
6411	Brass, nickel-plated	44 00
6410½	Brass, silver-plated, satin finish	61 00
6411½	Brass, silver plated, burnished	75 00

Eb BASS

No.		Each
6412	Brass	$51 00
6413	Brass, nickel plated	58 00
6412½	Brass, silver plated, satin finish	79 00
6413½	Brass, silver-plated, burnished	95 00

Eb CONTRA BASS

No.		Each
6414	Brass	$54 00
6415	Brass, nickel plated	62 50
6414½	Brass, silver plated, satin finish	90 00
6415½	Brass, silver plated, burnished	104 50

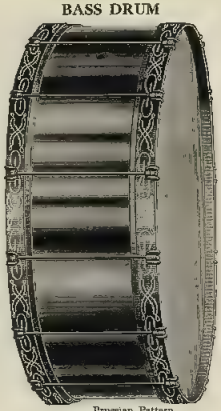
Eb HELICON BASS

No.		Each
6416	Brass	$73 50
6417	Brass, nickel-plated	81 50
6416½	Brass, silver-plated, satin finish	113 00
6417½	Brass, silver plated, burnished	128 00

BBb BASS LARGE SIZE

No.		Each
6428	Brass	$95 50
6429	Brass, nickel plated	113 50
6428½	Brass, silver-plated, satin finish	152 00
6429½	Brass, silver-plated, finely burnished	176 00

BASS DRUM



Prussian Pattern

Hoops and flesh hoops perfectly fitted. Maple hoops with Decalcomanie ornamentation, white metal plated trimmings.

With Chamois Skin Head Stick

No.	Maple Shell	Mahogany Shell	Each
61335	63335	28-inch shell, 9½ inches high, 11 rods, 2 calfskin heads,	$22 70
61335½	63335½	28-inch shell, same description as above, with 1 calfskin and 1 sheepskin head	20 50
61345	63345	30-inch shell, 9½ inches high, 12 rods, 2 calfskin heads,	24 20
61345½	63345½	30-inch shell same description as above, with 1 calfskin and 1 sheepskin head	22 10

SLIDE TROMBONES

Nos. 61268 to 61271½

Eb ALTO

No.		Each
61268	Eb. Alto, brass	$17 00
61269	Eb. Alto, brass, nickel plated	20 00
61268½	Eb. Alto, brass, silver-plated satin finish	27 00
61269½	Eb. Alto, brass, silver-plated, burnished	31 60

Bb TENOR

No.		Each
61266	Bb. Tenor, brass	$17 50
61267	Bb. Tenor, brass, nickel-plated	21 00
61266½	Bb. Tenor, brass, silver-plated, satin finish	28 00
61267½	Bb. Tenor, brass, silver-plated, burnished	32 60

Bb BARITONE

No.		Each
61270	Bb. Baritone, brass	$19 00
61271	Bb. Baritone, brass, nickel plated	23 00
61270½	Bb. Baritone, brass, silver-plated, satin finish	29 60
61271½	Bb. Baritone, brass, silver-plated, burnished	32 50

CYMBALS

No.		Per pair
6107	Brass, 7 inch, with leather handles	$1 50
6108	Brass, 8 inch, with leather handles	1 90
6109	Brass, 9 inch, with leather handles	2 50
6110	Brass, 10 inch, with leather handles	3 50

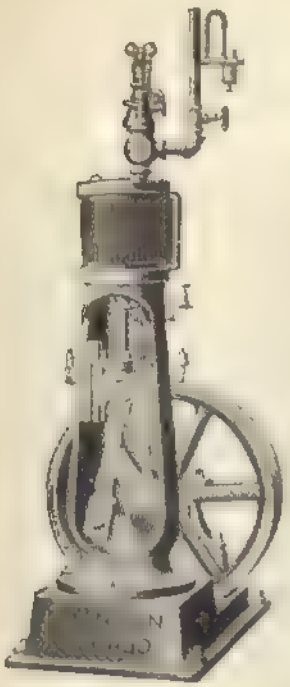
SNARE DRUMS

White metal plated rods and trimmings, fine finished rosewood sticks. Maple hoops, ebonized or imitation rosewood finish, rawhide snares.

No.		Each
6165½	14-inch maple shell, 6 in. high, 7 rods, 6 snares, 1 calfskin head	$ 9 80
6115	15-inch maple shell, 6 inches high, 8 rods, 8 rawhide snares, 2 calfskin heads	11 70
6515	15 inch brass shell, 6 inches high, 8 rods, 8 rawhide snares, 2 calfskin heads	11 70
6615	15-inch brass shell nickel-plated, same description as No. 6515,	12 30

PRICES SUBJECT TO CHANGE WITHOUT NOTICE

CHANNON "BULLOCK" STANDARD



SIDE OR DISC-CRANK VERTICAL SELF-CONTAINED STEAM ENGINES

We present this style of engine as the most desirable form for general purposes where small powers are required.

They are highest grade in design, material and workmanship. They are built for hardest kind of work and long runs. Speed may be increased with entire safety.

Every engine is thoroughly tested and placed in complete running order before leaving the shop and requires no further adjustment before starting.

When engines are ordered complete, the following trimmings are included: Governor, governor belt, sight-feed cylinder lubricator, necessary oil cups for bearings, eccentric, cross head pin and guides, drain cocks for cylinder and steam chest, throttle valve and nipples, also necessary wrenches.

SPECIFICATIONS AND PRICES

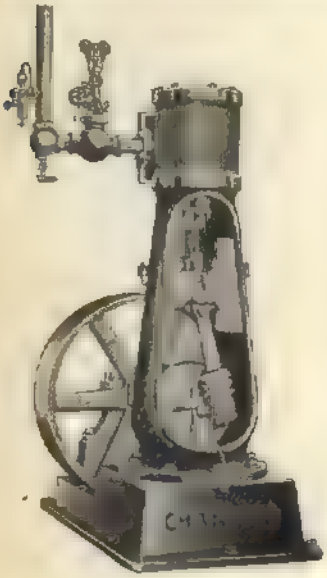
Size, Number	18	19	20	21	22	23	24
Horse-power as usually rated	1½	3	5	7	10	14	20
Size of Cylinder, inches	3 x 3	4 x 4	5 x 5	6 x 6	7 x 7	8 x 8	9 x 9
Revolutions per minute	300	250	250	200	190	180	160
Size of Steam-pipe, inches	½	¾	¾	1	1¼	1½	2
Diameter of Exhaust-pipe, inches	¾	1	1	1¼	1½	2	2½
Diameter of Shaft, inches	1 3/8	1 7/8	1 7/16	1 5/16	2 1/8	2 13/16	2 15/16
Diameter of Fly wheel, inches	12	16	20	24	32	36	42
Face of Fly-wheel, inches	3	4	5	6	7	8	9
Height from floor to center of Shaft, in.	9	10	12	14	18	2[illegible]	24
	Ft. In.	Ft.	Ft. In.	Ft. In.	Ft. In.	Ft. In.	Ft. In.
Height to top of Cylinder	2 6	3	3 7	4 5	5 1	5 8	6 7
Floor space occupied, inches	13 x 23	15 x 28	18 x 36	22 x 40	25 x 46	28 x 50	30 x 56
Weight of Engine, pounds	225	425	600	1,000	1,400	2,050	2,050
Price of bare Engine	$65.40	$107.05	$138.50	$174.80	$240.12	$310.64	$356.16
Price of Oil-cups (four)	2.40	2.40	2.60	2.60	2.92	2.92	2.92
Price of Sight-feed Lubricator	3.25	3.25	3.50	3.80	4.56	4.56	5.72
Price of Throttle Valve and Nipples	1.25	1.50	1.50	1.80	2.10	2.28	3.40
Price of Governor	14.00	13.00	16.00	18.00	21.00	25.00	30.00
Price of Governor Belt	.70	.80	.90	1.00	1.30	1.60	2.00
Price of Engine, complete	$87.00	$131.00	$163.00	[illegible]	$272.00	[illegible]	$400.00

Can furnish these Engines in "Center Crank," if desired, at same price

EXTRA HEAVY "BULLOCK" DISC-CRANK VERTICAL ENGINES

Built Expressly for Heavy Mill and Factory Use. Extra Heavy in All Its Parts

The bearings are long and of large diameter and are made of best babbitt. Ample provision is made in all wearing parts for adjustment. Every engine is carefully tested under steam and all adjustments made.

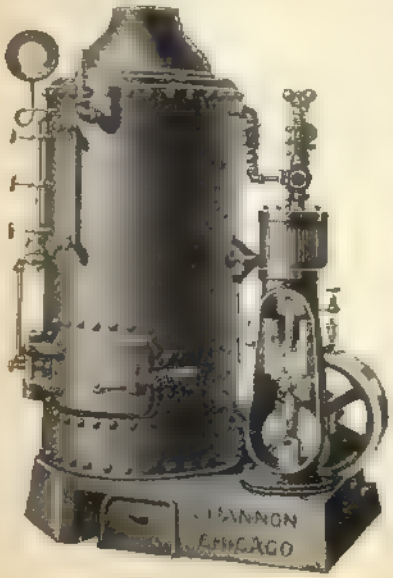


Horse Power as usually rated...	25	35	50	75
Size of Cylinder, inches.....	10x10	12x12	14x14	16x16
Revolutions per minute.	160	160	150	140
Size of Steam Pipe, inches..... .	2½	3	3½	4
Diameter of Exhaust Pipe, inches	3	3½	4	4½
Diameter of Shaft, inches.	3¼	3¾	4¾	5¾
Diameter of Fly wheel, inches.....	44	48	52	54
Face of Fly-wheel, inches	10	12	14	16
Height from Floor to Center of Shaft	26 in.	28 in.	30 in.	31½ in.
	Ft	Ft. In.	Ft. In	Ft In.
Height to top of Cylinder	7	7 8	8 6	9 4
Floor Space occupied, inches.... .	36 x 62	40x70	41x80	41x85
Weight of Engine, pounds	3,200	4,400	6,400	8,000
Price of Bare Engine	$513.00	$681 28	$865 50	$1,101 50
Price of Oil Cups (four).	2.92	3 20	3.20	3 50
Price of Sight-Feed Lubricator. ...	5 52	5.52	6.80	7 50
Price of Throttle Valve and Nipples	5 66	7 50	11.50	13 00
Price of Governor.....	40 00	50 00	60.00	71 00
Price of Governor Belt..... .	2.00	2.50	3 00	3.50
Price of Engine complete.	$570.00	$750.00	$950.00	$1,200.00

"BULLOCK" STANDARD VERTICAL ENGINE

Combined with Suitable Boiler Complete on Same Base. All Connections Made Ready for Use

The complete outfit as shown includes all engine fixtures, all necessary boiler fixtures, with injector fitted, all piping and connections made between engine and boiler.



Horse-Power Usually Rated	Size of Cylinder Inches	Size of Boiler Inches	Number of 2 inch Tubes	Height from Floor to Top of the Ft. Feet	Floor Space, Inches	Shipping Weight, Lbs.	Price Complete as Shown
1½	3x3	20x36	16	3½	22x33	650	$160.00
3	4x4	24x48	24	4½	27x40	1,800	260.00
5	5x5	27x60	30	6¼	31x43	2,100	310.00
7	6x6	30x72	42	6⅝	36x55	3,000	410 00
10	7x7	36x72	60	6⅝	42x66	4,700	550.00

Exhaust pipe and stack not included but furnished at slight extra charge.

THE CHANNON IMPROVED SCRAPER EXCAVATOR

For Digging Irrigation and Drainage Ditches, Building Levees, Making Railroad Cuts and Fills, Digging Ore from Open Cut Mines, Loading Cars, Stripping Coal Beds, Digging and Back-Filling Sewers and Trenches, for Use in Gravel and Sand Pits or for Handling Loose Material of Any Kind

Channon Improved 14-foot Turntable Excavator with 1½-yard Scraper Bucket and 50-foot Boom Digging Gravel and Loading it Into Cars

The entire upper half of this machine revolves upon a steel rail circle which is used as a "Bull-wheel" in swinging. The machine can make one revolution and [illegible] circle but the swing is not continuous, that is, after one revolution is completed it is necessary to reverse as the swinging lines are fixed at two points.

The entire machine moves backwards from the work by its own power.

The scraping bucket is [illegible] next page is lowered directly under the boom point and is pulled toward the machine by the drag line. It is [illegible] one-and-a-half times its own length depending upon the class of material it is digging. When full, it is [illegible] right [illegible] the hoisting line. The swing is commenced at the same time as the hoisting of the bucket.

The point of the bucket is held up by the tension line. When ready to dump the engineer simply slacks up on the drag line and the bucket is dumped automatically by its own weight and the weight of the material [illegible].

The bucket dumps whether full or empty as the hoisting ball is behind the center of gravity of the bucket and the load. The bucket when dumped hangs perpendicularly so that all material must be discharged.

Digging Radius

The boom is attached in front of the machine and it is 6 feet from point of attachment to the center of rail circle, consequently 6½ feet may be added to the length of the boom to get the digging radius from the center of machine. Owing to this large digging radius that may be had with our machine, it is only necessary in the large majority of cases to handle the material but once, thus effecting a large saving.

An engineer should easily average about one bucket per minute and keep it up for ten hours a day. We rate our 1½-yard machine [illegible] yards in ten hours. It is understood, of course, that the capacity depends almost entirely upon the class of material handled, the length of the boom and the faithfulness of the man handling the levers.

Adaptability

In some cases owing to very deep digging as for foundations, etc., our scraper bucket cannot be used and our machine will operate [illegible] or orange-peel bucket without any other changes than adding an extra sheave in the point of the boom. It will also handle a skip or can be used as a swinging derrick for hoisting by simply removing the bucket.

It is essentially a dry-land dredging machine but it has been used successfully mounted on a barge or scow for dredging in inland lakes, cleaning and digging small ditches, laterals, etc.

Sizes and Capacities

		Price
1 -yard machine, capacity about	500 yards in 10 hours	$
1½-yard machine capacity about	750 yards in 10 hours	
2 -yard machine capacity about	1,000 yards in 10 hours	

The 1½-yard machine, with 50-foot boom, is the favorite size.

Send for Pamphlet Giving Complete Description

CHANNON IMPROVED ADJUSTABLE AUTOMATIC POWER SCRAPER

PATENTED

No. 1—Digging

No. 2—Carrying the Load

No. 3—Dumping

These buckets are used with our Improved Channon Scraper Excavator but may be handled by any double friction drum engine and swinging derrick.

The back drum of the engine is used for hoisting the bucket and the front drum for pulling it toward the derrick.

The dumping of the bucket is accomplished by slacking on the pulling line. When this is done the bucket instantly assumes position as shown in Fig. 3 above, the front or pulling bail coming back over the body of the bucket and out of the way of discharging material.

By adjusting the turnbuckle connecting rod between the bails of the bucket a change in leverage is obtained so that the point of the bucket is made to take a deep cut for soft digging or a very shallow cut for hard material.

The back end of the bucket part is rounded so that clayey and sticky material may be more readily discharged.

Sizes, in cubic yards	½	¾	1	1½	2
Weight, lbs.	950	1,100	1,250	2,100	2,950
List prices	$475.00	$550.00	$625.00	$875.00	$1,000.00

Cutting edge of bucket is reinforced and sharpened. Teeth for hard digging can be put on if desired.

TRADE MARKS
E. C. SIMMONS' KEEN KUTTER
REGISTERED.

TOBACCO CUTTERS.

EASY CUTTING. Draw Cut motion gives Clean Cut. No strain on Knife

Cast Iron Frame, Base and Handle, Painted Crimson and Gold, to Screw to Table

Per Dozen

No. 15—KEEN KUTTER*, Draw Cut; With Measuring Scale; Highest Grade Crucible Steel Polished Blade Screwed on; Low Set Finish Handle; Gold Striped; Length of Base 16½ inches; Width of Base 4 inches; Height 6⅝ inches; Will take Plug 4 inches Wide; Weight per dozen about 72 lbs. $24.00

One-half Dozen in a Case.

Cast Iron, Japanned, Frame, Base and Handle; to Screw to Table

Per Dozen

No. 2—STANDARD; Oblique Cut; With Folding Measuring Scale; Polished Crucible Steel Blade screwed on; High Handle; Soft Brass Strip under Knife; Red and Gold Striped; Length of Base 17 inches; Width of Base 3⅞ inches; Height 7¾ inches; Will take Plug 3½ inches Wide; Weight per dozen about 84 lbs. $24.00

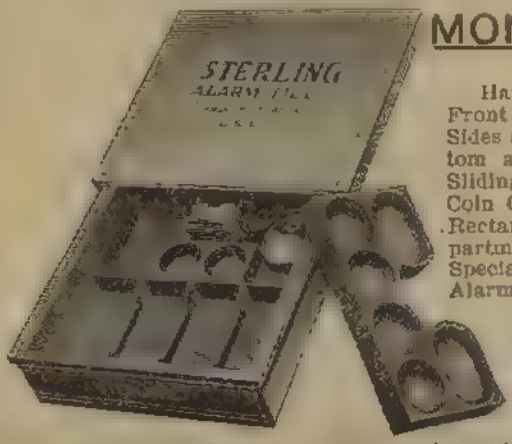
One-half Dozen in a Case.

Per Dozen

No. 1—NEGRO; Regular Cut; Polished Steel Blade Riveted on; Medium High Handle; Babbitt Metal Strip under Knife; Plain Finish, With Figure; Length of Base 10½ inches; Width of Base 2⅞ inches; Height 7⅝ inches; Will take Plug 3½ inches Wide; Weight per dozen about 60 lbs. $12.00

One Dozen in a Case.

MONEY DRAWERS.



Hardwood, with Varnished Front Board; Plain Stained Sides and Back; Plain Bottom and Top; Hardwood Sliding Till, with Turned Coin Compartments; Four Rectangular Bill Compartments below; Special Combination Alarm Lock, with Five Finger Grips, Steel Wire Rods, Levers etc.; Lock has 32 Changes.

Dovetailed; Beaded Oak Front; Oak Slides and Grooves; Malleable Encased Lock Mechanism; Four Round and Two Large Oval Coin Compartments, in Solid One Piece Till; Two Round Coin Compartments below; Cast Bell Metal Gong; Width 16¼ inches; Length 15½ inches; Depth 4½ inches (Outside); Inside Measurements 1 inch Less.

Per Dozen

No. S/1—STERLING*; Walnut-Stained Front; Extra Quality and Finish; Full Walnut Stained and Varnished Inside; Weight per dozen about 160 lbs. $36.00

No. 2—TUCKER; Cherry-Stained Front; Unvarnished Cherry-Stained Finish Inside; Weight per dozen about 160 lbs. . [illegible]

Lock Corner; Oak Front; Hardwood Slides and Grooves; Stamped Steel Semi-Encased Lock Mechanism; Six Round Coin Compartments in Three-Piece Till; One Round Coin Compartment below; Spiral Steel Spring Cathedral Alarm; Width 16½ inches; Length 16½ inches; Depth 5 inches (Outside); Inside Measurements 1 inch Less.

Per Dozen

No. 4—STANDARD; Oak-Stained Front; Varnished Sliding Till; Weight per dozen about 170 lbs. $27.00

One-half Dozen in a Crate.

CHIPAWAY SAWS.

KEEN KUTTER

Products were awarded the

GRAND PRIZE

at the

St. Louis Exposition, 1904

by the International Jury of Awards in competition with the world

The International Jury of Awards at the St. Louis Exposition awarded the

GRAND PRIZE

to the Celebrated

KEEN KUTTER CUTLERY

in competition with the world and for all-round excellency

GOLD MEDAL

GRAND PRIZE

Simmons Hardware Co., Inc.

St. Louis, Mo., U.S.A.

OF ALL

Department of Manufactures

GROUP 41

GOLD MEDAL

KEEN KUTTER and WALDEN

POCKET KNIVES

were given the

HIGHEST AWARD

at the Lewis & Clark Exposition at Portland

in competition with the United States.

KEEN KUTTER GOODS

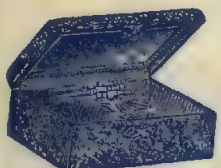
have invariably taken the

HIGHEST HONORS

at every Exposition at which they have been exhibited

in competition with the world.

Complete Fitted Work Boxes



No. 3351. Work Box, square shape with deep moulded top, covered olive celluloid, handsome picture top with embossed end borders. Scrolls on front and sides, decorated in gold and colors. Sateen lining with 3-in. round bevel mirror in lid. Contains six pieces work fittings across center; size, 7¾x5¾x3¾ in.
Dozen 6.00

No. 3354. Work Box, large size, curve shape lid with receding front, full celluloid covered, lithographed picture top in nice live colors, puffed silk lined mirror inside of cover, with 6-piece tool fitting handsomely made and finished; fine goods.
Dozen 13.50

No. 3352. Work Box, square shape, covered full celluloid picture top, embossed end borders, balance covered holly pattern leatherette, sateen lined with full mirror in lid. Contains five pieces work fittings across center.
Size, 7x5x3⅛. Dozen.....8.00

No. 3353. Work Box, square shape, covered full celluloid picture top, embossed end borders, balance covered olive celluloid, neatly embossed scrolls and borders, decorated in gold and colors, sateen lined with round bevel mirror in lid. Contains five pieces work fitting across center.
Size, 7¾x5¾x3⅛. Dozen...10.00

Complete Shaving Sets

No. 3290. Shaving Case. Square shape, with rounded top, covered floral leatherette, with fancy picture top. Sateen lined with full mirror in lid. Contains shaving mug, razor and lather brush.
Size, 7¼x5¼x3¼. Dozen....9.00

No. 3291. Shaving Case. Square shape, with panel top, covered full celluloid picture top, embossed end borders, balance covered floral leatherette. Sateen lined Contains shaving mug, razor and lather brush. Size,
7¼x5¼x3⅜. Dozen.....12.00

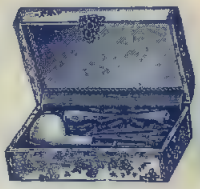
Cigar Box with Moistener

No. 3307. Humidor, square shape, made of natural polished oak with gilt word, "Cigars" on top and metal lining. Size,
6¼x9⅝x3⅜. Dozen 12.00

No. 3305. Smoker Stand, imitation Flemish oak base with bevel edge, gilt, cigar, ash and match cups with bodies covered with cherry pattern celluloid, gilt ornamental match strike. Size,
7x10⅝ in. Dozen.....9.00

No. 3306. Smoker Stand, round shape with bevel base, polished dark oak, gilt cigar, ash and match cups with oak celluloid bodies to match base. Stag ornament; size 8x8.
Dozen 12.00

SMOKERS' SETS.



No. 3304. Smoker's Set, square shaped case, covered celluloid picture top and embossed end borders, balance covered floral leatherette; satin lined with full mirror in lid. Contains briarwood pipe, cigar and cigarette tubes and nickel match box.
Size, 6½x4½x2½. Dozen...12.00

No. 3303. Smoker's Set, square shape with celluloid picture band across top, balance covered floral leatherette, sateen lined with ribbon in lid. Contains briarwood pipe and cigarette tube. Size,
6½x3¼x2⅜ in. Dozen.....7.50

TOYS—Continued

BOATS—Continued

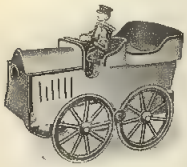
No. 86334 Motor Boat, cigar shape with a sharp bow and two passengers. Highly painted in bright colors, 9 inches long, 4 inches high.. ..... Per doz. $18 00

No. 86335 Sub-marine Boat, when boat is wound up and placed in the water, it will dive down and swim along underneath the water and appear on the surface again. Highly painted length 10 inches, each in box. . . . . Per doz. $24 00

No. 86336 Fire Boat, as the boat runs in the water, by the mechanism a stream of water is steadily and automatically thrown, highly finished in bright colors, 12 inches long, 4 inches high . . . . Per doz. $30 00

CLARK'S "HILL CLIMBERS"

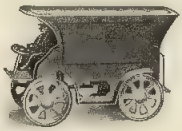
Iron, decorated in colors, with extra heavy friction wheel motive power



No. 86590 Automobile, length 8 inches Per doz. $8 50

No. 86595 Scorcher, gear momentum, length 11 inches. Per doz. $8 50

No. 86591 Pullman car, length 13 inches Per doz. $8 50

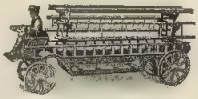


No. 86596 Ambulance, gear momentum, length 13 inches Per doz. $13 50

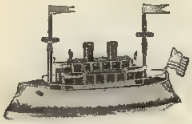
No. 86599 Fire engine, gear momentum, length 11½ inches, Per doz. $18 00

No. 86592 Automobile, length 9 inches. Per doz. $8 50

No. 86597 Chemical Engine, length 10¾ inches Per doz. $13 50



No. 86600 Hook and ladder, gear momentum, length 19½ inches. . . . . Per doz. $18 00



No. 86593 Cruiser length 13 inches Per doz. $8 50

No. 76501 Police Patrol, gear momentum, length 10¾ inches . . . . . Per doz. $13 50

No. 86601 Automobile, gear momentum, length 12¾ inches. Per doz. $18 00

No. 86594 Police Patrol, length 10¾ inches Per doz. $8 50

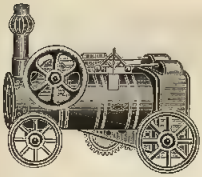
No. 86598 Locomotive and tender, friction, length 21 inches. . . . . Per doz. $18 00

No. 86602 Gun Boat, length 19 inches . . . Per doz. $18 00

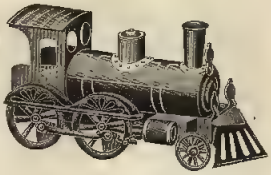
TOYS Continued

MECHANICAL ENGINES

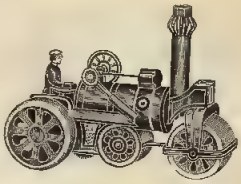
Each in box



No. 86204 Tin locomotive with 4 wheels, when wound up will run forwards and backwards reversing at the end of a certain distance, size 7x5 inches — Per doz.
86205 Tin threshing machine on 4 wheels, when wound up will run forwards, fly-wheel turns, size 6½ inches, 6½ inches high to top of smoke stack. — 8 50



No. 86206 Tin locomotive with 4 driving wheels and 2 small wheels, low piston rod 10 inches long, 5 inches high — Per doz. $8 00

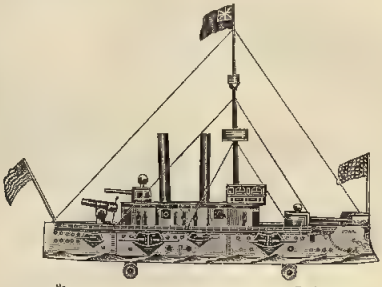


No. 86207 Tin steam roller with engineer, is 8½x6 inches, each in box. — Per doz. $8 50

BOATS

No. 86866 Noah's Ark, wood, lithographed in colors, size 13x9, contains small wooden animals — Per doz. $4 00
86868 Same as No. 86868, size 18x7 — 8 00

No. 86866 Single car shell, neatly painted and carved, wire oar locks, athlete with painted sweater and cap holds the oars, length 12¾ inches — Per doz. $4 00
86867 Same as above but with 3 men, length 18 inches — 8 00



No. 86870 Gun boat, wood, lithographed in colors, length 21½ inches — Per doz. $4 20
86871 Same as No. 86870, length 28 inches — 8 50

No. 86328 Mechanical boat, imitation steam boat, painted white with red trimmings, brass boiler, black smoke stack, length 9 inches — Per doz. $4 24

No. 86325 Steam boat, body finished in red stripes, brass boiler, black smokestack, size 9½ inches long, 4½ inches high each in box — Per doz. $4 50

No. 86329 Mechanical boat, imitate wheel action, 2 smoke stacks, nicely finished in red and white, length 8 inches, each in box — Per doz. $7 20

No. 86330 House boat with deck, cabin canopied top, imitation brass railing, boat is oblong shape, 6 inches long 3 inches high, packed each in a box, nicely painted in attractive colors — Per doz. $7 20

No. 86331 Scagoing tug with imitation searchlight, cabin and hurricane deck, one smoke stack, 6½ inches long, 4½ inches high — Per doz. $7 20

No. 86326 Steam boat with covered deck, novel shape, length 11 inches — Per doz. $9 50

No. 86327 Steam boat finished in red and blue, has a covered deck and brass railing, size 15x6 inches. — Per doz. $16 00

No. 86333 Gun boat with 2 masts, blind guns fore and aft of deck cabin, finished in red, white, and light green, 10¾ inches long, 7½ inches high, each in box. — Per doz. $24 00

No. 86332 Ocean going tug imitation searchlight and signal bell, motion of the propeller runs the signal bell, deck cabin with hurricane deck, smoke stack, finished in bright attractive colors with figure outlined at the fore, 9 inches long, 4½ inches high, each in box — Per doz. $14 60

IT WILL PAY YOU TO USE
POST CARDS
For Advertising Purposes

WILKESBARRE HILL CLIMB. The Great Chadwick Six (Winner) at the Finish

Subjects Similar to the Above are One Color Photographic Post Cards

For this style card you furnish photograph, we furnish engraving, one or two lines of description included.

1 subject, 1st thousand	$5.90	Each additional thousand, each	$ 75
2 subjects ordered at one time, 1st thousand, each	5.50	"	75
4 " " " " " " "	5.00	"	25
8 " " " " " "	4.65		0
16 " " " " " " " "	4.50		10
32 " " " " " " " "	4.20		97

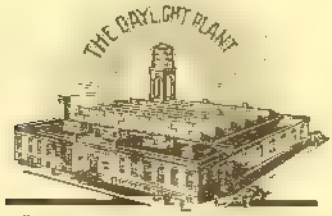
Special prices on quantities of over 5,000 of a subject.

If you would prefer to have the cards roughed or pebbled, the additional charge will be $1.00 per thousand in lots of one subject.

2 subjects at one time, per thousand	$0.75
4 " " " " "	.50
8 " " " " " "	.30

Send for samples and tell us what quantities you can use

Chilton Printing Co., Market and 49th Sts., Phila.



CHILTON
PRINTING CO
PHILADELPHIA

THIS trade mark or the name "Chilton Printing Co." on a piece of printing, indicates that the buyer appreciates the advantages which are offered by the "Daylight" Plant, viz.: Good printing at reasonable prices.

With our large office facilities, we are able to offer services to our patrons which cannot be had from other printers. We have a complete department for illustrating, catalog compilation, "ad" writing, which, together with original ideas, guarantee the best services which it is possible for any printer to render any patron.

We earnestly solicit your inquiries.

Yours very truly,

CHILTON PRINTING COMPANY

MARKET AND 49th STREETS :: PHILADELPHIA

President	Vice-President	Sec. and Treas.
JAS. ARTMAN	GEO. H. BUZBY	C. A. MUSSELMAN

"W. & B." WRENCHES
Machinists' Knife Handle

This wrench has the head and bar drop forged in one piece from selected steel. The jaws are case hardened and the entire wrench is ground, polished and highly finished. Every wrench warranted

RAILROAD ROAD SPECIAL
Steel Handle

This wrench is of the same construction and finish as the "W. & B." Machinists' Knife Handle Wrench, except it is fitted with indestructible iron handle

List Prices "W. & B." Railroad & Coe's Wrenches

Size in Inches	Price per Dozen	Price Each	Size in Ins	Price per Dozen	Price Each
6	$ [illegible]	$0[illegible]	15	$[illegible] 00	$2 [illegible]
8	10 00	1 [illegible]	18	[illegible] 00	3 [illegible]
10	12 [illegible]	1 [illegible]	21	5[illegible] 00	3 60
12	14.00	1.40			

COE'S WRENCHES

Regular Knife Handle

New Steel Handle

List Prices Same as "W. & B."

NEW KEY MODEL

Length Inches	Will Open, Inches	Weight, Each, Lbs.	Price Each
28	[illegible]¼	17	$ 9.75
36	6¼	27	19 00

The 28-inch New Key Model will take a 3-inch standard pipe union, and the 36-inch a 4-inch.

AGRICULTURAL OR REGULAR WRENCHES

Same style as Machinists' Screw Wrench, but without knife handle Consequently cheaper.

Length Inches	Will Open, Inches	Weight, Each, Lbs.	Price per Doz.	Price, Each
6	1	⅝	$10.00	$1.00
8	1¼	1¼	12.00	1 20
10	1⅝	1⅝	14.00	1 40
12	2	2⅛	17.00	1 70
15	2⅜	3¼	24 00	2 40

"W. & B." COMBINATION WRENCHES
Made of Crucible Steel

Bright Finish

Length Ins	Opens Inches	Wt Each Lbs	Holds Pipe	Holds Round Iron	Price per Dozen	Price Each
10	2¼	2[illegible]	[illegible] to ¾	[illegible] to 1	$25.25	$2 [illegible]
12	2⅝	5[illegible]	[illegible] to 1¼	[illegible] to 1¾	28 50	2 85
15	3⅝	5	[illegible] to 2	[illegible] to 2¼	40 50	4 [illegible]

BEMIS & CALL PATENT COMBINATION WRENCHES

With Long Nut

LONG NUT

Size Inches	For Pipe, Inches	Price per Dozen	Price, Each	Wt. per Dozen, Lbs
8	[illegible] to [illegible]	$[illegible] 00	$[illegible] 30	1[illegible]
10	[illegible] to 1	[illegible] 00	2 50	26
12	½ to 1¼	28 00	2 85	[illegible]
15	¾ to 2¼	40 00	4 05	[illegible]
18	½ [illegible]	7[illegible] 00	7 [illegible]	87

"GIANT" REVERSIBLE RATCHET WRENCH

For railroads, bridge builders, manufacturers and all users of socket wrenches. Web handles of drop forged steel; sockets drifted from solid steel. The most powerful tool on the market

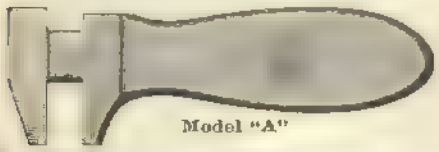
All sockets take square or hexagon nuts

Made in [illegible] handle only, [illegible] for the following size nuts: ¾, ⅞, 1, 1⅛ and 1¼ inches, standard bolt sizes

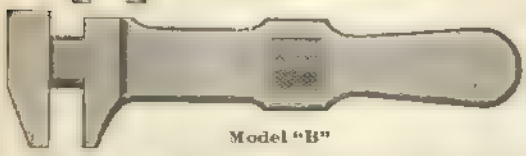
Price

No 324 24-inch handle, including any one-size socket.....$8.00
Additional sockets each, 3.50

BILLINGS IMPROVED PATENT ADJUSTABLE POCKET WRENCHES



Model "A"



Model "B"

Drop Forged from Bar Steel, and finished in Black and Fol Nickel Plated. Sliding Bar graduated to 32nds of an inch, with oval edges.

LIST PRICES

Model	Length inches	Opens inches	Black Each	Black Dozen	Nickel Each	Nickel Dozen
A	[illegible]	1	$0 90	$9 00	$1 00	$10 00
B	5	1	90	9 00	[illegible]	[illegible]
C	5	1	.90	9 00	1 00	10 00
D	6	1¼	1 00	10 00	1 20	12 00
E	7	1½	1 20	12 00	1 50	15 00

Pipe Wrench Attachment for Model "E", per dozen..... $4 20

BILLINGS ADJUSTABLE AUTOMOBILE WRENCHES

LIST PRICES

Size, inches	Opens inches	Semi-Finished Each	Semi-Finished Dozen	Full Finished Each	Full Finished Dozen
8	1½	$1 00	$10 00	[illegible]	$12 00
10	2	1 00	10 00	1 [illegible]	12 [illegible]
14	2½	2 40	24 00	2 [illegible]	28 [illegible]
18	3	3 00	30 00	3 50	36 00

8-inch size is furnished Finished and Nickeled. Other sizes as stated above.

All Case Hardened Drop Forged throughout.

ADJUSTABLE ALLIGATOR WRENCH

Nickel Plated

Length, 7 inches. Holds pipe up to ¾ inch. Weight, 10 oz. Price, per doz ..... $12 00 Extra Jaws, per doz..... $3.00

WESTCOTT ADJUSTABLE "S" WRENCH

Length, inches	Opens, inches	Price Each	Price per Dozen
6	¾	$0 70	$ 7.20
8	1	.90	9.00
10	1⅜	1.20	12.00
12	1⅝	1 50	15 00
14	2	2.10	21.00

ALLIGATOR OR BULL DOG WRENCHES

Made in Three Styles

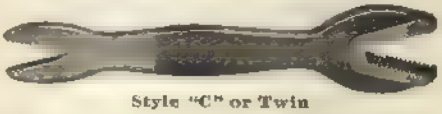
Style "A."

No.	Length, inches	Holds pipe, inches	Holds Round Iron, inches	Price Each	Price per Dozen
2	9	⅜ to ¾	½ to 1	$1 20	$12.00
2½	12½	⅜ to 1	⅝ to 1¼	1 80	18.00
3	16	½ to 1¼	¾ to 1⅜	2 40	24 00
4	22	1¼ to 2	1½ to 2⅛	3 60	36 00
4½	24	1¾ to 2½	1⅝ to 3	4.50	45 00
5	27	2 to 3	2¼ to 3½	5.40	54 00

Style "B."

No.	Length, inches	Holds pipe, inches	Holds Round Iron, inches	Price Each	Price per Dozen
0	4	[illegible]	[illegible]	[illegible]	[illegible]
1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1½	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1¾	[illegible]	[illegible]	[illegible] to 1½	[illegible]	8.00

Nos. 0 and 1 are Nickel Plated. Nos. 1½ and 1¾ Black Finish with Heavy Polished Jaws.



Style "C" or Twin

Twin 10 inches long . . Price, each, $1.80, per dozen, $18 00
Takes pipe ⅜ to ¾ inch. Takes iron ¼ to 1 inch.

"ALWAYS READY" WRENCH

Manufactured from special steel, forged and tempered in oil.

No.	Length, inches	Holds Round Iron	Nickel Plated Price Each	Nickel Plated Price per Dozen	Black Price Each	Black Price per Dozen
1	5	¼ to ⅝	$0.50	$ 5 00	$0 45	$ [illegible]
2	7	⅜ to 1⅛	.65	6.75	60	[illegible]
2½	9½	½ to 1⅜	1.05	10.50	1 00	[illegible]
3	11½	¾ to 2	1 60	16.00	1.50	[illegible]

Cut shows Nickel Plated Wrench which is always sent unless otherwise ordered.

Black Finish Wrenches have heavy polished jaws.

ANVILS

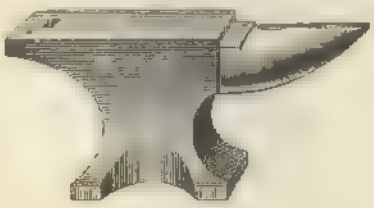
COLUMBIA ANVILS

Solid Wrought. Crucible Steel Face. Warranted.

Our Columbia Anvils are made of all wrought iron doubly refined and consequently are **Solid Forgings.**

The Crucible Steel on face, which is **the very best** that can be bought for the purpose, is welded to the wrought iron. They are the best anvils on the market, none excepted

General Blacksmiths' Pattern



PRICES:

80 to 400 lbs		base per lb		
70 to 79	½	cts. per lb	Extra	
60 to 69	1	"	"	"
50 to 59	2	"	"	"
40 to 49	3	"	"	"
30 to 39	5	"	"	"
20 to 29	8	"	"	
10 to 19	15	"	"	"

Size of Face to Weight of our Columbia Anvils.

Face	Weight	[illegible]
3½ " x 12½ "	80 to 90 lbs.	⅞ "
3½ " x 13½ "	100 to 110 "	⅞ "
4 " x 15 "	125 to 135 "	1
4 " x 15½ "	140 to 145 "	1 [illegible]
4 " x 16	150 to 160 "	1 [illegible]
4 " x 16½	170 to 180 "	1⅛
4 " x 17	190 to 200 "	[illegible]
4½ " x 18 "	250 "	[illegible]
5 " x 20 "	300 "	1¼
5½ " x 22 "	350 "	⅜
6 " x 24 "	400 "	1⅜ "

[illegible] inch diameter in anvils with 4 inch face and smaller. 9-16 inch in larger sizes

COLUMBIA FARRIERS' CLIP HORN ANVILS

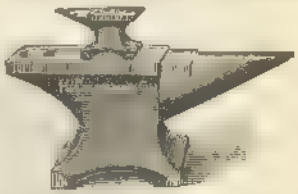
Made from 80 to 400 lbs. Generally with 3½ and 3¾ face. Drop on step from ⅞ to 1 inch.

Add 1 cent per lb. to Blacksmith Pattern prices.

PETER WRIGHT'S ANVILS

(Imported)

Wrought Iron with Steel Face



Weight 85 to 500 lbs., base		per lb., $	[illegible]
71 to 84 lbs. [illegible]		"	.01
" 61 to 70 "		"	01½
" 51 to 60 lbs.	"	"	02
" 50 lbs. and Lighter	"	"	05
Farriers' Anvils	"	"	00½

VULCAN ANVILS

Charcoal Iron Base with Steel Face

A good anvil, cheaper than the Columbia.

No.	Weight Each, lbs.	Price Each	No.	Weight Each, lbs.	Price Each
00	5	$2.00	9	90	$ 9 00
0	10	2.75	10	100	10 00
1	15	3.25	11	110	11 00
2	20	4 00	12	120	12 00
3	30	4 50	13	130	13 00
4	40	5 25	14	140	14 00
5	50	6 00	15	150	15 00
6	60	6 50	17½	175	17 50
7	70	7.25	20	200	20 00
8	80	8 00	25	250	25 00

"EAGLE" ANVILS

Iron Base, Steel Face

Blacksmith's, 70 to 800 lbs.....per lb., $.....

"EAGLE" SMALL ANVILS OR "MINIMS"

No.	Weight Each lbs.	Price Each	No.	Weight Each lbs	Price Each
000	½	$1 00	5	50	$5 00
1	8	3 50	6	60	5.50
2	20	4.00	7	70	6.00
3	30	4 30	8	80	7.00
4	40	4 50	9	90	8.00

COLUMBIA SAW MAKERS' ANVILS

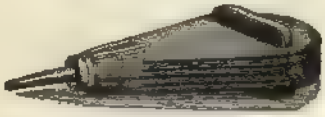
Solid Wrought Iron. Crucible Steel Face

Same quality as the Columbia Blacksmiths' pattern.

Made from 50 to 150 lbs.

Price, per lb. ....$.....

BLACKSMITHS' BELLOWS



STANDARD PATTERN

This pattern is universally sold throughout the United States, and is giving abundant satisfaction to the user.

It is made of thoroughly seasoned lumber and covered with a substantial split cowhide leather; not a poor sheepskin.

Width, inches	Price Each	Width, inches	Price Each
24	$10.00	36	$18 00
26	11 00	38	20 00
28	12 00	40	23 00
30	13.00	42	27 00
32	14.00	44	32 00
34	16 00		

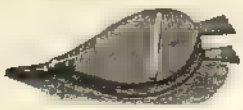
EXTRA LONG PATTERN

We furnish two grades in this pattern. The "Standard," which is covered with split cowhide leather, and the "Special," which is covered with fine quality of grain cowhide or kid leather. It is made throughout with the best material obtainable. Both grades take same list prices.

Width, inches	Price Each	Width inches	Price Each
24	$12 00	38	$24 00
26	13 00	40	28 00
28	14 00	42	34 00
30	15 00	44	40 00
32	17 00	46	45 00
34	19 00	48	50 00
36	21 00	50	60 00

HAND BELLOWS

Extra Quality



STANDARD

Width, inches	Price per Dozen	Width, inches	Price per Dozen
6	$10.00	9	$13 00
7	11 00	10	15 00
8	12 00		

MOLDERS		MINERS	
Width, inches	Price per Dozen	Width, inches	Price Each
10	$15 00	24	$5.00
12	18 00	26	5 75
14	24.00	28	6 50
		30	7 25

Special Bellows made to order.

TUYERE IRONS

WARREN'S PATENT

The blast is regulated by simply revolving the ball, which has three unequal sides. Open the bottom valve and all cinders and ashes drop out.

Weight about 31 lbs Each $2 20

NORTON'S PATENT

To regulate the blast turn the large rod. The levers and springs can be easily changed for right or left hand use. Draw out small rod to drop ashes.

Weigh about 27 lbs. Each... .... . . $2 00

CLARK'S PATENT.

With Ball Valves

Nos.	Weight, lbs.	Price Each
1	About 18	$1 30
2	" 21	1.55
3	" 26	1 80
4	" 45	2.60

GLOBE

BOX

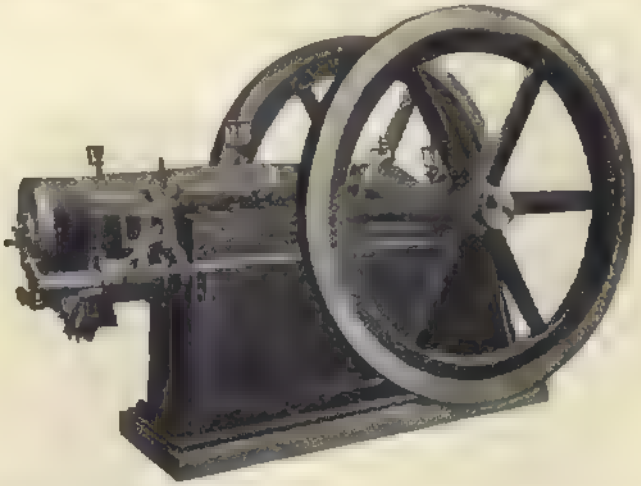
Style	Weight, lbs	Price per Doz	No.	Weight lbs	Price per Doz.
Without plate	24	$13 00	1	16	$ 9.00
With plate	26	14.00	2	21	12 00
			3	25	14 00

DUCK NEST

Single Pattern

No	Style	Weight lbs.	Price per Doz
1	Single	11	$ 8 00
2	"	15	10 00
3	"	18	12 00
4	Double	17	12.00

"COLUMBUS" HORIZONTAL GAS AND GASOLINE ENGINES



The object of the designer has been to provide a simple engine free from all trappy devices, which are constantly getting out of order.

An engine constructed of the very best material, equally adapted to use gas or gasoline and to change from one to the other without stopping.

An engine that will avoid compression and also prevent the electric spark being made when not required, thus saving the exertion of heavy flywheels, batteries and electrodes.

An engine so arranged that the speed can be changed while the engine is in motion.

An engine with the closest regulation, accomplished by a sensitive governor aided by heavy fly wheels properly balanced and built in strict accordance with mechanical principles.

POINTS OF EXCELLENCE

Simplicity. Highest efficiency.
All parts easy of access. All wearing parts adjustable.
Long life of battery and electrodes.
Poppet valves with removable seats.
Valves operated mechanically and not by suction.
All valves thoroughly water jacketed.
No delicate parts to get out of order.
No unnecessary compression. Close regulation of speed.
Highest grade of material. Best of workmanship.
Exhaust valve opens against atmospheric pressure only.
Igniter so constructed as to prevent moisture from injuring the electrodes.
Igniter so located that fresh gas and air pass over the electrodes for each charge.
Change of speed while engine is running.
Can take up its load on any revolution without waiting to complete its cycle.

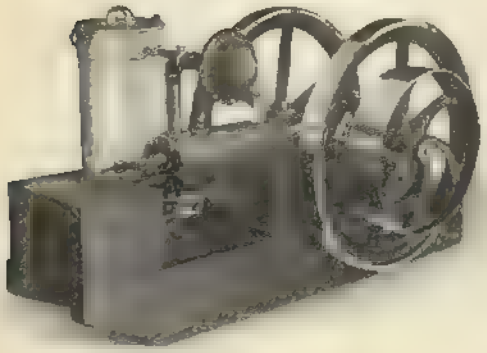
Explosion head cast solid with cylinder and no packing joint to blow out.

Complete Specifications upon Request

Actual H. P.	Speed—R. P. M.	Floor Space	Drive Pulley		Approximate Shipping Weight
			Diameter	Face	
Horizontal 4	275	28 x 59	12	8	2000
Horizontal 6	275	28 x 60	12	8	2200
Horizontal 8	250	30 x 65	18	12	2800
Horizontal 10	250	30 x 67	18	12	3100
Horizontal [illegible]	[illegible]	[illegible] x 72	24	[illegible]	3[illegible]8
Horizontal [illegible]	200	[illegible] x 80	24	[illegible]	4800
Horizontal 17	200	37 x 81	24	16	5200
Horizontal 20	200	40 x 84	34	10	5800
Horizontal 23	180	44 x 102	34	10	7900
Horizontal [illegible]	180	[illegible] x 105	34	10	7800
Horizontal [illegible]	[illegible]	[illegible] x 108	36	12	10500
Horizontal [illegible]	170	[illegible] x [illegible]	42	12	11500
Horizontal 40	170	54 x 124	42	12	12500
Horizontal 45	160	58 x 130	42	14	13500
Horizontal 50	160	58 x 132	48	14	15500
Horizontal [illegible]	[illegible]	61 x 13[illegible]	48	14	16[illegible]00
Horizontal 60	160	60 x 136	48	14	17000

Prices include batteries, spark coil, lubricators, oilers, wrenches, printed instructions and blue print for setting up gasoline tank if for gasoline or gas bag and duplicate indicator cock if for gas.

"STA-RITE" GASOLINE ENGINES.



Complete Six-Horse Outfit

These engines are shipped crated complete on skids with all connections made The skids will be of sufficient strength and length to form as good a foundation as is needed; all that is necessary will be to line up engine with machinery, fasten the engine down, supply it with fuel and start

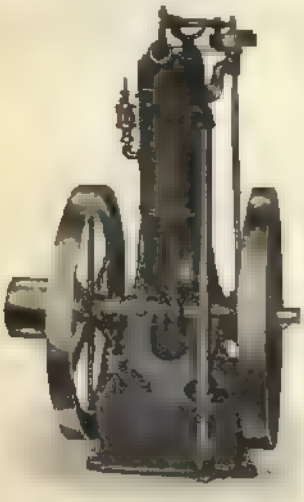
Water and gasoline tanks are furnished and connected with each outfit. Engine is simple and up to date in every respect using minimum quantity of fuel for the work done. Has suction feed for gasoline doing away with pump, piping, valves, etc. Engine is regulation four cycle with jump spark igniter using three dry battery cells and coil without any vibrator a simple, but efficient, make and break which can be easily shipped so as to get the spark at just the right moment.

Size H. P.	Bore Inches	Stroke Inches	Speed R. P. per Minute	Balance Wheel Inches	Crank, Inches	Skids Width, Inches	Skids Length, Ft.	Weight, Lbs.	List Price
6	6	8	300	36	2	16	6	1350	$281 25
8	6¾	9	260	36	2¼	18	7	2000	[illegible] 00
10	7½	10	250	42	2½	22	9	3000	408 75
12	7¾	10	250	42	3	23	10	3500	[illegible] 25

Extra for mounting on steel wheels or trucks..... $62 50
Extra for saw attachment with belt and saw, for mounted engines . 73 15
Extra for 30 or 32 pulley with clutch for 8 to 12 H. P.—$50.00; 26 or 28-inch pulley 43.75

"VULCAN" 2 1-2 H. P. VERTICAL ENGINE

For Gas or Gasoline



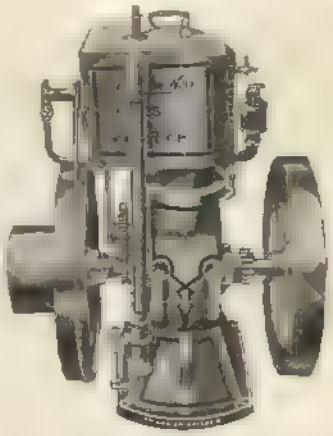
This is a strong and substantial little engine, well designed and well made in every particular

Height, 36 inches. Floor space, 20 x 24 inches. Fly-wheels, 24 inches. Belt pulley, 6 x 6 inches.

Weight, 500 lbs.

Price, $125.00

Outfit includes electric battery, spark coil, switches, wire, pipe, hose and valve for water connection, oil cups, lubricator, oil can, wrenches and book of instructions.



"NEW WAY" AIR-COOLED VERTICAL GAS AND GASOLINE ENGINES

3 to 3 1-2 H. P.

Air-cooling system is perfect. Governor, the simple "hit or miss" type. All parts easily accessible. Lubrication, automatic. All parts of engine well made in every respect.

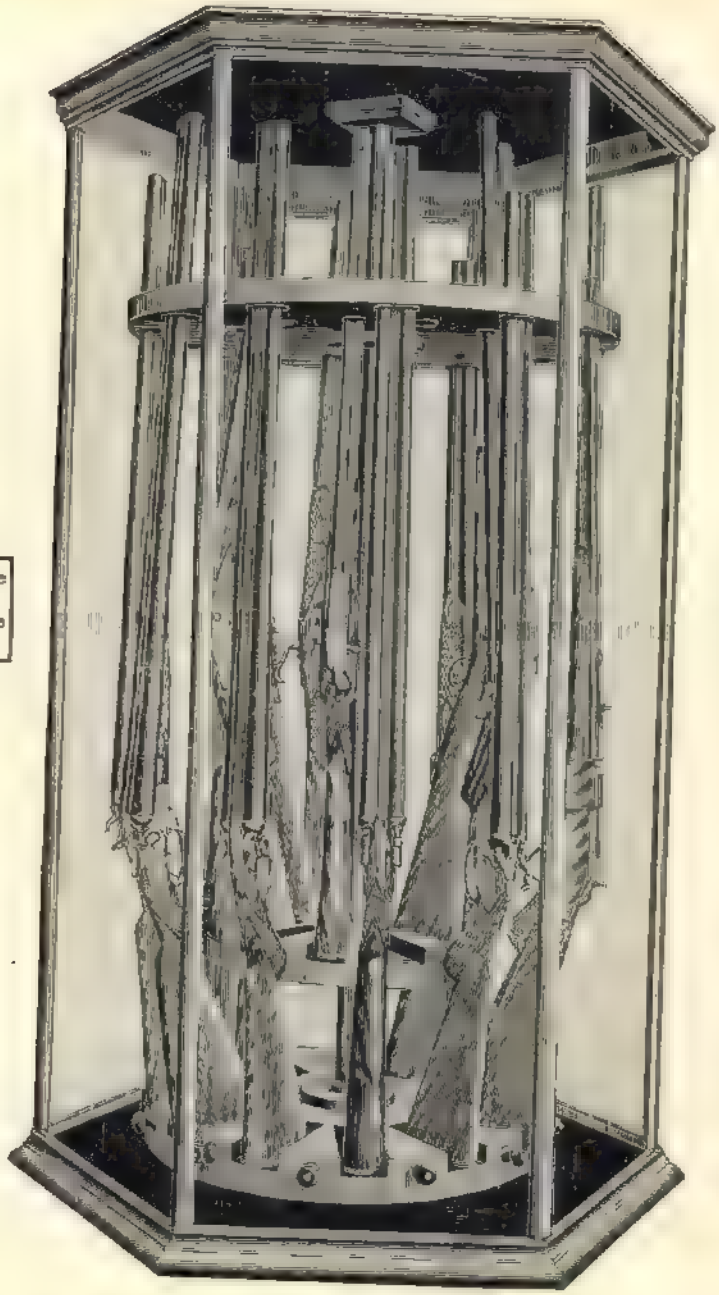
Gasoline is stored in base of engine. 3 to 3½ H. P.; speed, 200 to 600 R. P. M.; pulley, 8 x 4 in.; cylinder, 4½ in.; bore, 6-in. stroke; floor space, 20 x 28 in.

Shipping weight, 545 lbs. . . . . Price net $185.00

Complete with battery, spark coil and two spark plugs, can of oil, tools, etc.

GUN CASES.

Guns Always Before Your Customers
No Rusty Guns to be Sacrificed.



No One Can Visit Your Store Without Seeing Your Guns.

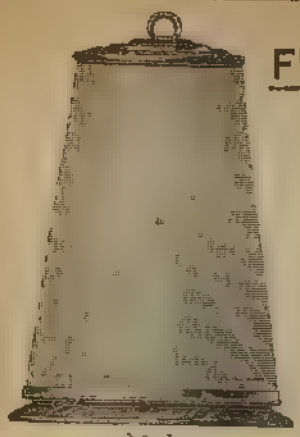
Common Sense Hexagon Case 56 inches High, 31 inches in Diameter, with Revolving Center; Varnished Oak Frame; all Glass Sides, One Side Opens as a Door, with Lock and Key, Holds 12 Shot Guns or Rifles; Platform in Center to hold 12 Target Rifles, Air Guns, etc.; CASE ONLY, Boxed Ready for Shipment ..... Each $25 00

Weight Each, Boxed, about 225 lbs.

This Case is intended to be placed on the Counter.

Every Merchant will appreciate the Common Sense Gun Case It will pay for itself in one Season. A large display of Guns always before your customers, but in a Locked Case No Rusty Guns to be sacrificed No danger from sneak thieves No one can visit your Store without looking at your Guns. When Guns are out of season, and the stock is low, the interior of this Case is so arranged that other Goods can be displayed to advantage.

FLY TRAPS.



No. 1

No. 2.

Per Dozen

No. 1—CONE; Painted; 12 Mesh Wire Cloth, Soldered to Two Tin Uprights; Diameter of Top 4¼ inches; Bottom 6¼ inches; Height 9¼ inches; Weight per dozen about 9 lbs..... $4.50

No. 2—BALLOON; Tinned; 12 Mesh Wire Cloth, I. C. Tin Bound Edges; Diameter Bottom 4 inches; Height 7 inches; Weight per dozen about 6 lbs..... 4.00

One Dozen in a Case.

DISH COVERS.

Round; 12 MESH WIRE Cloth, Blued; I. C. Tin Bound; Tin Knobs.

Diameter, inches	6	7	8	9	10
Depth, inches	3	3⅓	4	4½	5½
Per dozen	$1.20	1.45	1.75	2.10	2.50

One Dozen in a Package.

In Sets of 5 Assorted, 6, 7, 8, 9, 10.....Per Set $0.75

One Set in a Package.

Oval; 12 MESH WIRE Cloth, Blued; Tin Bound; Tin Knobs.

Length, inches	8	10	12	14	16	18
Width, inches	5½	7	8½	9¾	12	13
Depth, inches	4½	5	5½	6	7	8
Per dozen	$2.00	3.00	4.00	5.00	6.00	7.00

One Dozen in a Package.

In Sets of 6 Assorted, 8, 10, 12, 14, 16, 18. Per Set

Weight per dozen about 4 lbs..... $2.35

One Set in a Package.

INSECT POWDER GUNS.

Per Dozen

No. 979—I. C. Tin, Brass Finish; Black Leather Top; Diameter 2½ inches; Height 1 inch; Length over all 5 inches; Capacity about 3 ounces; Weight per dozen about 1¼ lbs..... $1.25

One Dozen in a Cardboard Box.

FLY KILLERS.

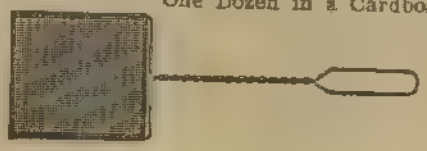
Per Dozen

No. 33—Tinned, Steel Wire Broom-Shaped Head; Black Hardwood Handle; Head Secured to Handle with Brass Ferrule, Clamped to Wires; Size of Head 5 inches Wide at End, 5¼ inches Long; Length over all 15¾ inches; Weight per dozen about 2 lbs $2.40

Per Dozen

No. D—DOUGLASS'; Enameled, Wire Cloth Head; Bound with Imitation Leather; Black, Hardwood Handle, Riveted to Head; Head Reinforced with Tin; Size of Head 4 inches Wide, 6 inches Long; Length over all 16¾ inches; Weight per dozen about ¾ lbs..... $1.55

One Dozen in a Cardboard Box

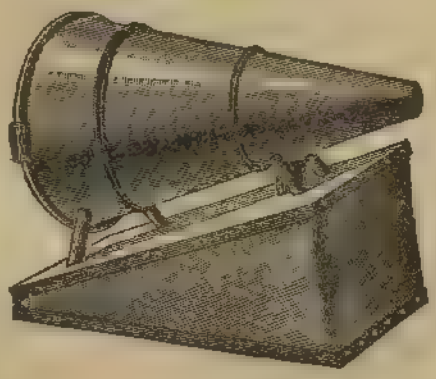


Per Dozen

No. B—Enameled, Wire Cloth Head; Galvanized Twisted Wire Handle, Inserted through Head and Clinched; Size of Head 4¼x4½ inches; Length over all 13½ inches; Weight per dozen about ¾ lbs..... . . $1.00

One Dozen in a Package

BEE SMOKERS.



Clark's Cold Blast

Per Dozen

Clark's; Breech Loader; I. C. Tin Horn; Diameter 5 inches, Length 8 inches; Seamed Sheepskin Bellows; Wood Frame, Size 4¾x 7½ inches; Replenished by Revolving Sliding Door; Weight per dozen about 15 lbs . $10.00

Packed Loose.

THE REDINGTON COUNTING MACHINE

Size, 3 ½x2 ½x2 ½ inches

For accurate and rapid counting. All parts made of sheet steel and interchangeable. Working parts enclosed yet easily accessible. Can be set back to zero without key or other device. Will not jump or lose count when run at high speed.

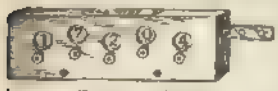
Price each $5 00

THE SPRINGLESS COUNTER

A perfect counting machine which does not depend on springs but cut gears, therefore nothing to get out of order.

Price each $5 00

THE JOB COUNTER



Parts are stamped from steel and brass, with case hardened. Ratchet and Dog, and best of material used throughout.

No. 1 Counts 10,000 price each, $3 00
No. 2 " 100,000 . . . . .

THE BENTON TALLY REGISTER

These Tally Registers are so constructed that their accumulations can be set to zero at will. They are of simple construction, can be carried in the pocket, are about the size of an ordinary watch, and weigh about 6 ounces. They are used by railroad, telegraph and steamboat men for checking or tallying ties, telegraph poles, and passengers, and all kinds of freight by cattlemen for counting cattle and sheep, by lumbermen, loggers and timber estimators and by detectives and spotters, and at places of amusement for counting the people going in and out. In fact they can be used for any purpose where a correct count is desired to be kept.

No. 00 Records to 100 . . . . price each $1 00
No. 0 " " 1,000 . . . . . " 1 50
No. 1. " " 10,000 . . . . . " 2 50

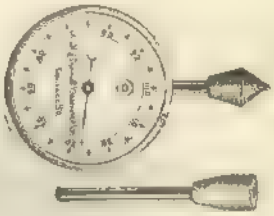
TABOR SPEED INDICATORS
With Stop Motion

This Indicator has two dials one beneath the other allowing of a continuous count of 5,000 revolutions. The stop motion prevents the moving of the dials until the proper moment.

Price each $1 00

For other Speed Indicators, see index

THE LIGHTNING SPEED INDICATOR
Recording to 1,000 Revolutions



Strictly high grade, for high and low speeds. Rubber tips for flat or hollow centers, also form safe insulation.

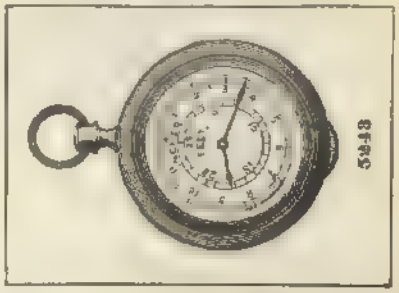
Price each $2 00
In leatherette case. 2 50

THE IDEAL REVOLUTION COUNTER

Can be set back to zero by a single pressure on the crown. Not set in motion until button is released, thus insuring great accuracy of count. Will work right or left. Size 1½ inches diameter. Inch thick, convenient for vest pocket.

No. [illegible] With [illegible] dials recording 10,000 revolutions
Price each $4 50
No. [illegible] With 4 dials recording 100,000 revolutions
Price each 6 00

THE ROTAMETER
Or Surface Speed Indicator



For measuring surfaces by simply running the proceeding wheel any distance up to 25 feet. Invaluable in machine or lathe work. Nickel plated.

No. 5 [illegible] inch dial in inches and feet $2 00
No. [illegible] " " . . . . . 4 [illegible]
No. [illegible] M. [illegible] " metric measure 2 00
No. [illegible] M. [illegible] . . . . . [illegible]
No. 5,30. With 3 dials and instantaneous set back, recording to 100 feet. [illegible]

STARRETT SPEED INDICATORS

(See Starrett Tools.)

THE PERFECT HANDLE SCREW DRIVER

A Solid, One Piece, Drop-Forging

The Oval Shaped Wood Handle gives greater leverage, fits the hand better and is more comfortable than fluted round handles and other shapes.

They are **tempered** very correctly, each one is carefully **tested**, and they are fully **warranted.**

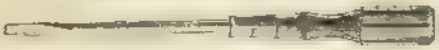
Length Blade, inches	Diam. inches	Price Each	Price Dozen	Length Blade inches	Diam. inches	Price Each	Price Dozen
4	½	$0 40	$4 25	8	⅝	$0 80	$ 8 00
5	¾	50	5 00	10	⅝	1 00	10 00
6	9/16	60	6 00	12	⅝	1 20	12 00
7	9/16	.70	7 00				

THE "PERFECT HANDLE" MACHINISTS' OR HEAVY SERVICE SCREW DRIVER

Made in Two Sizes	No. 9½	10½
Length over all	9½	10½ inches.
Length of Blade...	4½	5 "
Size of Square	3/16	3/16 "
Width of Point	½	¾
Thickness of Point	1/16	3/64
List price per dozen	$12 00	$13 00
List price each	1.20	1 30

CHAMPION SCREW DRIVERS

Forged From Toughest Steel



MACHINISTS

Length Blade inches	Price Each	Price Dozen	Length Blade, inches	Price Each	Price Dozen
2	$0 30	$3 00	7	$0 70	$ 7.00
3	35	3.50	8	.80	8 00
4	40	4 25	9	90	9 00
5	50	5 00	10	1 00	10 00
6	60	6 00	12	1 20	12 00

EXTRA HEAVY WITH DOUBLE GRIP HANDLES

Inches	12	15	18	24	30
Per dozen	$14 00	$16 00	$18 00	$24 00	$30 00
Each	1 40	1 60	1 80	2.40	3.00

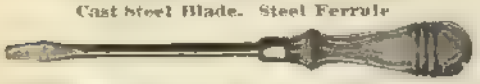
CHAMPION CABINET

Light Handles, Slender Blades

Length Blade inches	Price Each	Price Dozen	Length Blade inches	Price Each	Price Dozen
2	$0 30	$3 00	6	$0 60	$ 6 00
3	35	3 50	7	70	7 00
4	40	4 00	10	95	9 50
5	50	5 00	12	1 00	11 00

STANDARD SCREW DRIVER

Cast Steel Blade. Steel Ferrule



Length Blade inches	Price Each	Price Dozen	Length Blade inches	Price Each	Price Dozen
4	$0 20	$2 80	7	$0 26	$3 60
5	22	3 00	8	28	3 80
6	24	3 40			

FAIRBANK SCREW DRIVER

Flemished oak finished handle. Best quality oil tempered crucible steel blade. Guaranteed not to turn in the handle.

List prices same as Champion.

"YANKEE" RATCHET SCREW DRIVER No. 11

Right and Left Hand and Rigid

Length Blade, inches	Price Each	Price Dozen	Length Blade, inches	Price Each	Price Dozen
2	$0 40	$4 40	6	$0 75	$ 7 80
3	.55	5 60	8	.90	9 00
4	.60	6 10	10	1.05	10 50
5	.65	6 60	12	1.15	11 00

"YANKEE" No. 12 RATCHET SCREW DRIVER

This is the same tool as the 6 inch, No. 11, "Yankee" Ratchet Screw Driver, except that the blade is only 1¼ inches long and is made for special use of gunsmiths, fitters, electricians and mechanics requiring a strong, substantial screw driver with a short stub blade

Made in one size only: Blade 5/16 inch diameter, 1¼ inches long, entire length of Screw Driver 5¾ inches

Price per dozen	$7 50
Price each	75

"YANKEE" RATCHET SCREW DRIVER No. 15

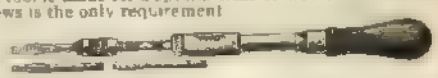
Right or Left Hand and Rigid

A light blade Screw Driver for small screws in electric work, etc. It has on its blade a knurled washer, as shown in cut, and by means of this the blade can be turned with a finger and the thumb

Length blade, inches	2	3	4	5
Price per dozen	$4 90	$5 30	$5.70	$6 10
Price each	45	.50	.55	.60

"YANKEE" No. 20 SPIRAL RATCHET SCREW DRIVER

This tool is made for a special class of work, where the driving of screws is the only requirement



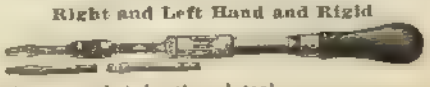
Made in Size No. 1 Extreme length extended, including bit 14 inches. Stroke 4 inches. Price each ..... $ 1.50
Price per dozen 14 75

No. 2 Length 17 inches; stroke 5 inches Price each $ 1 70
Price per dozen 17 00

No. 3 Length 19 inches, stroke 6 inches Price each $ 1 90
Price per dozen 19 00

"YANKEE" SPIRAL RATCHET SCREW DRIVER No. 30

Right and Left Hand and Rigid

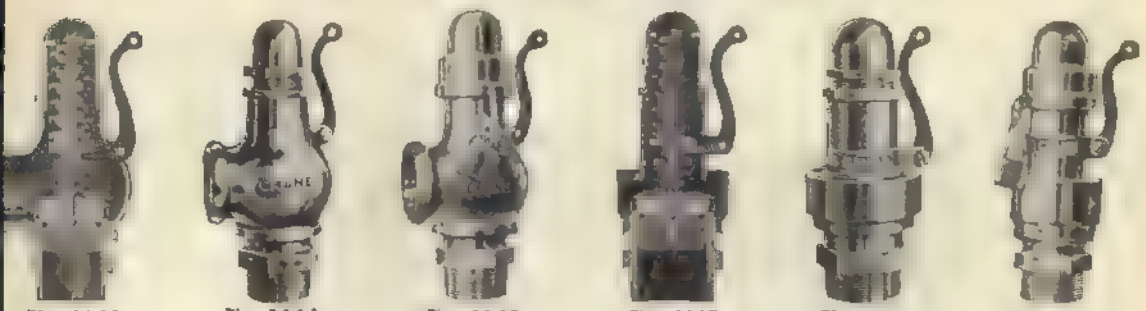


Three bits are included with each tool.

The extreme length of tool with bit in chuck is 19½ inches when closed, and 19¾ inches when extended. Price each $1.75

CRANE "STANDARD" BRASS POP SAFETY VALVES

Self-Adjusting "Pop" Regular For Small Stationary and Marine Boilers
Set at Any Pressure Specified up to 250 Lbs.



No. 1144 **No. 1144** **No. 1146** **No. 1148** **No. 1148** **No. 1150**

Be sure to specify style number and the pressure to blow off.

Size inches			½	¾	1	1¼	1½	2	2¼	2½
No. 1144	Side outlet	..each	$10.00	$10.00	$12.50	$17.50	$19.00	$28.00	$40.00	$52.00
No. 1146	Lock-up..		15.00	15.00	18.50	25.50	26.00	35.00	48.00	60.00
No. 1148	Top outlet		8.50	8.50	10.50	13.50	16.00	24.00	35.00	45.00
No. 1150	Lock-up		13.50	13.50	16.50	21.00	23.00	31.00	45.00	53.00
For Boilers		H. P.	6	6	10	20	30	40	55	70
Marine Boilers grate surface		sq. ft.	1.32	1.32	2.20	3.68	5.30	9.42	11.93	14.72

2¼-inch valve has 2½-inch conn. Can be made with female base or flanged conn. at an extra price. No. 1146 or No. 1150 can be drilled for inspector's seal instead of pin and lock.

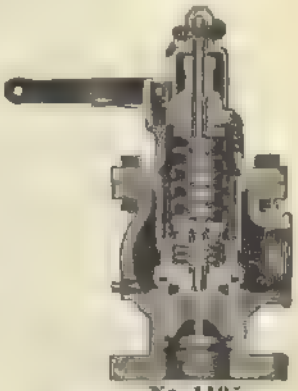
CRANE, IRON BODY, IMPROVED POP SAFETY VALVES

No. 1101
Plain Spring Type

With Brass or Nickel Seat—For Stationary Boilers

Set at Any Pressure Specified up to 250 Lbs.

When ordering, always specify the style number of valve and state the pressure at which valves are wanted set to blow off. When not otherwise specified No. 1101 Valve, with brass seat, will be furnished.



No. 1105
Encased Spring Type

Size inches	Price Each: No. 1101 With Brass Seat	No. 1101 With Nickel Seat	No. 1105 With Brass Seat	No. 1105 With Nickel Seat	Diameter of Base Flange, Inches	Center of Outlet to Bottom of Base Flange, Inches	Diameter of Outlet Flange, Inches	Center of Valve to End of Outlet, Inches	Total Height, Inches	For Boilers, H. P., Nominal
½	$ 45.00	$ 58.00	$ 65.00	$ 78.00	7½	5¼	Flange, Screwed Outlet	3⅞	16¼	70
¾	60.00	75.00	85.00	100.00	8¾	5¾		4¼	17¾	100
1	75.00	95.00	105.00	125.00	9	6¾		4⅞	20⅛	125
1¼	90.00	115.00	125.00	150.00	10	6¾		5	21¼	150
1½	110.00	140.00	150.00	181.00	10½	7⅛		6	22⅝	175
2	125.00	160.00	170.00	215.00	11	7⅞	10	[illegible]	23¼	200
2½	175.00	220.00	235.00	281.00	12½	8½	11	8½	25⅞	300

These Valves are made with combination flanged and screwed base. Hexagon screwed base furnished, when so ordered, at same price.

An additional charge will be made for special diameter flanges. Drilling will be extra at regular Extra Heavy drilling list prices and discount.

No. 1101 Valves furnished locked up at 50 cents each net extra. No. 1105 Valves are furnished locked up.

In localities where an inspector seal is required, we drill an extra hole in the steel pin at top of Valve, for attaching the wire and seal. This at no extra charge.

CRANE, No. 1152, ORDINARY BRASS POP SAFETY VALVES

No. 1152

Set at Any Pressure Specified up to 125 Lbs.

These Valves are made without the self-adjusting feature and for ordinary purposes, when uniform working pressure is carried, they answer all requirements.

For small stationary, portable, hoisting and threshing engine boilers.

Size, inches..	½	¾	1	1¼	1½	2
Price each..	$8.50	8 50	10.50	13 .0	16.00	24 00
Boilers, H. P..	6	6	10	20	30	40

When ordering, specify by No. 1152.

No. 1158 MUFFLER POP SAFETY VALVES

No. 1158

Set at Any Pressure Specified up to 250 Lbs.

They are made of brass, with best steel springs, and will subdue [illegible] reasonable noise of escaping steam to the greatest possible extent, without retarding or affecting the full relieving capacity of the Valve.

Size, inches. ..	1	1¼	1½	2
Price each.. .	$21.00	26.00	32.00	48.00
Price, with lock-up attachment,	26.00	32.00	39.00	55.00

No. 1160 LOW PRESSURE POP SAFETY VALVES FOR STEAM HEATING BOILERS

No. 1160

Set at Any Pressure Specified up to 20 Lbs.

These Valves are made of brass, with a strong and durable base, and are fitted with best steel springs.

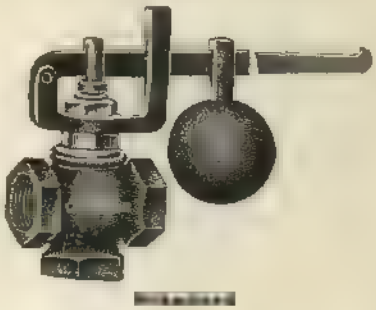
In addition to their extensive use on steam heating boilers, they are also useful on boiling kettles, tanks, etc.

When not otherwise specified we will furnish Valves set at 10 Lbs.

Size, inches...	¾	1	1¼
Price each	$ 7 00	8 00	9 00
Size inches ..	1½	2	2½
Price each. .	11	15 00	35.00

Can be drilled for inspectors' seal when so ordered.

BRASS SAFETY VALVES



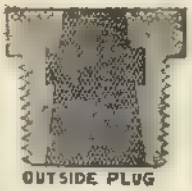
Standard Valves

Size, inches...	¼	⅜	½	¾	1
Price each	$2 20	2 50	3 25	3 90	4 70
Size inches .	1¼	1½	2	2½	3
Price each.	7 15	9 00	12 50	22 50	33 5

Can furnish angle valves at same list.

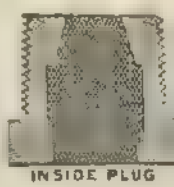
Sizes 1¼ and larger will be sent in iron unless otherwise ordered

FUSIBLE PLUGS



OUTSIDE PLUG

Fills U. S. gov't specifications, being made bronze filled with pure Banca Tin.



INSIDE PLUG

Size, inches..	⅜	½	¾	1	1¼	1½	2
Price each...	$0.55	.60	.75	1 00	1.50	2.00	3.0

POWELL "CYCLONE" BLOW-OFF VALVES

Iron Body, Bronze Mounted

With regrindable, reversible and renewable white metal discs.

Seat rings are of bronze and reversible

Price List

Size inches .	1¼	1½	[illegible]	2½	3
Screw Ends	$7 50	11 00	[illegible]	8 30	[illegible]
Flange Ends	8 [illegible]	1 20	[illegible]	2 [illegible]	30 00
White Metal Disks only	.80	1 00	1.35	2 25	[illegible]
White Metal Seat Rings only	1.00	1 20	1 [illegible]	2 80	3 90
Steam Metal Bronze Seat Rings only	80	1 00	1.3[illegible]	2 22	3 35
Disk Nuts each	.20	25	.35	50	75
Disk Studs or Stems, each . .	30	.35	50	65	.90

CROWNED WITH SUCCESS IN 1908
FOR 1909 BETTER THAN EVER

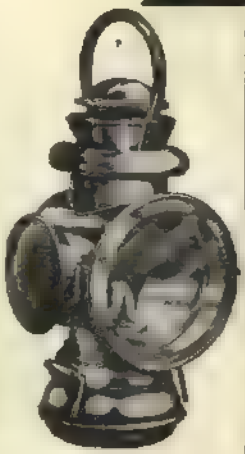
HAM'S LIMOUSINE
Square Auto Lamp

Ham's Lamps are known as the "Perfect Automobile Lamps" and they are well termed. There is strength and durability in every line of their build. They embody the Ham Genuine Cold Blast principle, which produces a strong, brilliant, white, wind-proof light; free from smoke and odor.

Our Exclusive and Artistic designs for 1909 will please you. Let us send you one of our catalogues. Address "Dept. D."

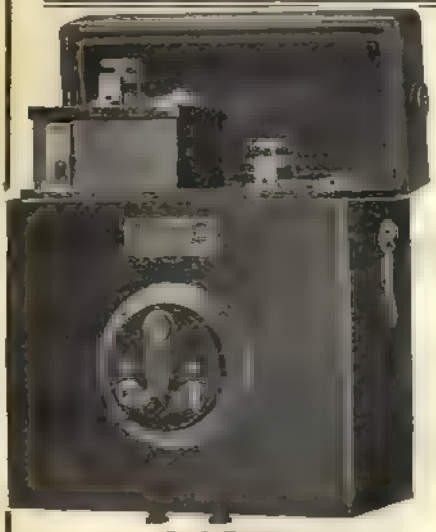
C. T. HAM MFG. CO.

Rochester, N. Y.



HAM'S VENUS
Cold Blast Tail Lamp

National Coils and National Spark Plugs



Dash Type

Insure Efficiency, Reliability, Economy and Quality

The COIL that holds the world's record for non-stop runs, 4,492 miles on Reo Car. Also on the Pilot Car in the New York to Paris race.

Question : Why was the NATIONAL COIL used ?

Answer : RELIABILITY.

WE ARE THE MAKERS OF THE RELIABLE NATIONAL BOX COIL

NATIONAL COIL CO., Incorporated Lansing, Mich., U. S. A.

CELLULOID COMBS—Continued

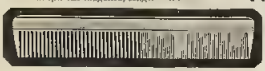
5 per cent extra discount allowed when full packages are ordered, excepting those at $4 a dozen list and under, packages of which we do not break. Each 12 in package

DRESSING Continued

No.		Per lot
8146	Six assorted colors in box, length 8 inches	$5 00

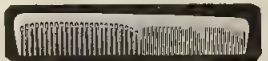
No.		Per doz
8145	Six assorted colors in box, length 8 inches	$4 50
8148	Same as No 8145, length 8½ inches	5 40

No.		Per doz
8090	White, length 8 inches	$5 60
8091	Amber, length 8 inches	5 60
8096	Transparent magenta, length 8 inches	5 60



No.		Per doz.
8139	Imitation cocobolo wood, length 7¾ inches	$6 72

No.		Per doz.
8092	Ivory, length 8½ inches	$7 80
8093	Tortoise shell, length 8½ inches	7 80



No.		Per doz
8115	Shell, length 7¼ inches	$9 00

No.		Per doz
8121	Shell, length 7½ inches	$9 00
8140	Imitation cocobolo wood, length 8 inches	12 00
8134	Ivory, large size, length 8 inches	18 00
8135	Shell " " 8 "	18 00
8136	Magenta, large size length 8 inches	18 00

BARBERS'

No.		Per doz.
8137	Imitation cocobolo wood, quill back, length 7 inches	$5 60

POKET

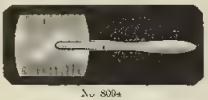
No.		Per doz.
8125	Transparent, assorted colors in slide, length 4¾ inches	$3 80

No.		Per doz.
8126	Transparent assorted colors in side, length 4¾ inches	$4 00

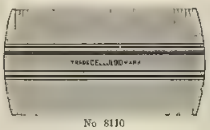
No.		Per doz.
8127	Assorted ivory and shell cases, length, open, 5¾ inches	$4 50

FINE

Nos. 8075 to 8077



No 8094



No 8110

No 8149

No.		Per doz.
8075	Fine, 10s, ivory finish, length 2¾ inches, 12 in pack.	$1 60
8076	Fine 12s, ivory finish length 3 inches 12 in package	2 00
8077	Fine 14s ivory finish length 3½ inches, 12 in package	$2 20
8094	Infants assorted colors, length 4⅛ inches	2 20
8110	Fine, length 3½ inches 12 dozen in package	$4 00
8149	Extra heavy fine teeth size 2¾x3¾	4 50

SEALING WAX

We do not break pound boxes of sealing wax

SANFORD'S

No.		Per lb.
450	Pure vermilion, 4, 8, 20 and 40 sticks to lb	$2 40
451	Bankers' specie, 4, 8, 20 and 40 sticks to lb	2 10
452	American Express, red, 4 8 and 20 sticks to lb	1 20
454	Jewelers' red and green 4 sticks only to lb	48
459	Green Express, 4 and 8 sticks to lb	60
455	Superfine Congress, red, 4, 8, 20 and 40 sticks to lb	1 92
456	" " London, red, 4 and 8 sticks to lb	1 08
457	No. 2 Red Express 4 and 8 sticks to lb	60
458	" 9 " " 8 " 8 " "	48
460	" 2 Green " 4 sticks to lb	48
463	Superfine Congress, black, 8, 20 and 40 sticks to lb	1 92
464	" London, " 8 and 20 sticks to lb	1 20
468	Assorted colors, perfumed, 20 and 40 sticks to lb	3 00
469	Spangled, 20 and 40 sticks to lb	3 50

LIBRARY ASSORTMENT, PERFUMED

No.		Per lb.
470	In light, medium and dark sets of 5 sticks each, making 15 colors in all, these are put up 5 stick in a box, 8 boxes in carton of 1 lb	$2 88

MONOGRAM ASSORTMENT, PERFUMED

No.		Per lb.
471	Large oval sticks, same style and color as library assortment	$2 88

ELITE OVAL ASSORTMENT, PERFUMED

Put up in boxes of 4 sticks, 4¼ inches long, 1 dozen boxes in carton

No.		Per doz. boxes
480	Light assortment 481 Dark assortment, 482 Medium assortment	$2 52

DENNISON'S

No.		Per lb.
	Excelsior, bright vermilion and black 4, 10, 20 and 40 sticks to lb	$2 00
	Bankers' Specie, deep vermilion, 4 and 10 sticks to lb	1 60
	E W D American Express, bright vermilion, 4, 10, 20 and 40 sticks to lb	1 28
	Fine red, black and green, 4, 10, 20 and 40 sticks to lb	1 00
2	American Express, medium vermilion, 4 and 10 sticks to lb	80
2	American Express, vermilion, 20 and 40 sticks to lb	1 12
3	Express, medium vermilion, 4 sticks to lb	66
4	" " " and green, 4 sticks to lb	50
5	" red, 4 sticks to lb	45

SEALING WAX Continued

FINEST PERFUMED

Put up in fine white enameled paper boxes, containing four short oval sticks, length 4¼ inches, assorted colors 1 dozen boxes in carton

No.		Per doz. boxes
600	Light assortment 601 Dark assortment.	$3 20

PERFUMED SEALING WAX SETS

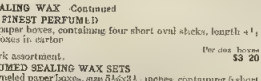
Put up in fine quality white enameled paper boxes, size 5½x3¼ inches, containing 5 short oval sticks, length 4¼ inches, assorted colors, 2 tapers and place for seal

No.		Per doz. sets
610	Light assortment. 611 Dark assortment.	$8 00

INITIAL SEALS AND TAPERS

2 dozen in package

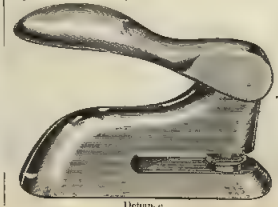
No. 1 or 2



No. 1 or 2

No.		Per box
1	Seals length 1⅝ inches black enameled metal, rust or gilt letters	$1 50
2	" " " " English letters	2 00
100	" " " " on geometrical background	2 00

Tapers, 3 in box, with taper holder — Per box dozen $1 02



Dennison

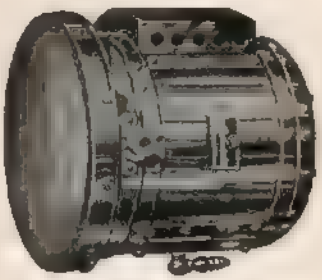
Henry ...'s embossed initial seals, 50 in box, 12 boxes in carton

No.		Per carton
401	Red	$1 50
402	Gold	2 00

Defiance initial seal punch, nickel-plated, all letters from A to Z not interchangeable, each punch has 1 letter only, letters old English style, each in box, per dozen $12 00

Phoebus Lamps and Generators

Designed for the automobilist who wants the best. They are constructed on attractive lines of excellent materials and finest finish.



$\frac{1}{16}$" brass body reinforced with extra bands ⅛" thick. Full size Bausch & Lomb Mirror, Adjustable Focus.

Double Generator. Heavy Gauge brass, Automatic cut-off Valve; water jacket cast base.

Very handsome square lamp, heavy gauge brass, silver reflector, perfect draught, will stay lit.

We can meet all competition in **Price, Quality and Prompt Delivery.**

Get Our 1908 Booklet

Manhattan Screw and Stamping Works, New York City

DIETZ
"Majestic" Headlights

DIETZ MAJESTIC HEADLIGHTS 1908 models, are fitted exclusively with the celebrated Bausch & Lomb Lenses have Dietz patent ventilating [illegible] and backs are hinged for easy cleaning, a very [illegible] feature.

You will never go home in the dark if you insist on

"THE OLD RELIABLE"

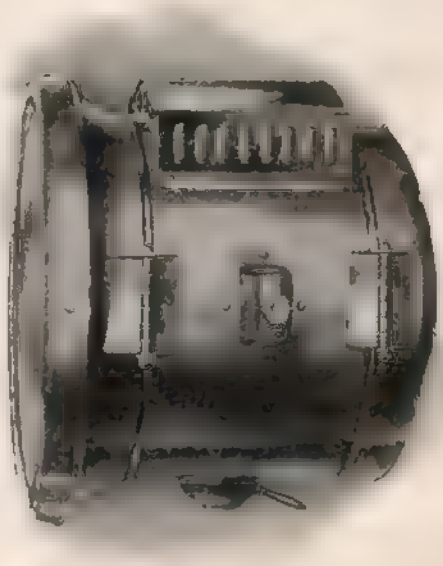
DIETZ MOTOR CAR LAMPS

NONE "JUST AS GOOD"

being furnished with your new car.

Dietz 6 in. Majestic, $18.00 pair
" 7 " " 2[illegible].00 "
" 8 " " 30.00 "
" 10 " " 50.00 "

Satisfactory trade discounts.
Equipped with Standard sockets to fit regular brackets.



DIETZ "MAJESTIC"

R. E. DIETZ COMPANY, **60 Laight St., New York City**

PACIFIC COAST. E. J. Day & Company, Oakland, Cal.

We make over 20 styles of motor lamps.

LARGEST MAKERS OF LANTERNS IN THE WORLD **Established 1840**

HERE'S SOMETHING ALL MOTORISTS WILL APPRECIATE

THE NEW DOVER TOURIST OIL AND GASOLINE KIT

Opened

Attached to Running Board

A neat, compact and dust-proof device for carrying extra oil and gasoline when touring.

The Tourist Oil and Gasoline Kit

consists of a fine, black enamel steel case containing two special enameled cans, having a capacity of over 1½ gallons EACH, with special pouring spout and filler cap.

INSTANTLY ATTACHED AND DETACHED

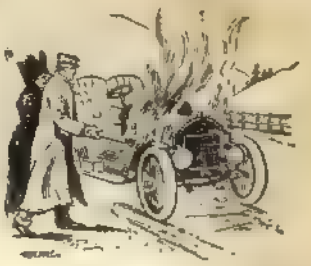
Price, complete with strap, $3.50

Correspondence Solicited.

DOVER STAMPING & MANUFACTURING COMPANY

CAMBRIDGE, MASS.

Save the Auto!



MANVILLE Fire Extinguisher

is absolutely warranted to put out any fire, whether arising from gasoline, benzine, calcium carbide, or any other cause, if thrown at the base of flames when fire first starts. It is also warranted not to injure paint or the upholstering, and not to freeze, cake in the tube, corrode or deteriorate with age.

Is always ready, always sure. OVER A HALF MILLION IN USE.

Is it worth $3.00 to get adequate fire protection for your auto?

WRITE NEAREST BRANCH FOR BOOKLET

H. W. Johns-Manville Co.

New York	St. Louis	Baltimore	Los Angeles
Milwaukee	Pittsburg	New Orleans	Seattle
Chicago	Cleveland	Kansas City	Dallas
Boston	Buffalo	Minneapolis	Toronto
Philadelphia	Detroit	San Francisco	London

(915)

The Geiszler Non-Sulphating Storage Battery Igniter

Size 46—6 Volt, 60 Ampere Hour Capacity

PRICE, $15.00

Guaranteed to give perfect satisfaction or money refunded. Send for Catalogue C.

GEISZLER BROS., 514 W. 57th St., N. Y.

THE ORIGINAL

DIETZ

DIETZ MOTORCAR LAMPS

"EMPIRE" and "Empire Junior" Lamps

(Gas or Electricity.)

NONE "JUST AS GOOD"

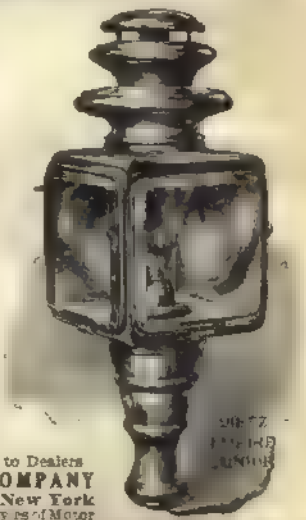
Dietz "EMPIRE" Side Lamps are heavy, well finished and handsome. Fitted for either acetylene gas or electric current, they give a large light. Lenses are sealed in metal rims, no solder is used and a lens can easily be replaced without tools. Silvered reflectors.

Dietz "EMPIRE" Side Lamps (17 in. high).

Pair, $16.00

Dietz "EMPIRE JUNIOR" Side Lamps (15½ in. high).

Pair, $14.00



Liberal Discount to Dealers

R. E. DIETZ COMPANY

60 Laight St., New York

We make over 40 styles of Motor Car Lamps, Headlights, Side and Tail Lamps. Also the famous Dietz "Handy" Generators. Send for Catalogue.

DOLLS—Continued

DOLL HEADS Continued

We do not break packages

No. 1076 No. 1078 No. 1080 No. 1082 No. 1086 No. 1088 No. 1090

Celluloid heads, painted hair, glass eyes and open mouth showing teeth.

No.		Per doz.
1076	Painted eyes, height 3¼ inches, bust 2½ inches, 5 in pack ge	$3 00
1078	Height 3¾ inches, bust 3 inches 3 in package	4 00
1080	Height 4½ inches, bust 3½ inches 3 in package	6 00
1082	" 5½ " 4½ " " "	8 50

Celluloid heads, with glass eyes open mouth showing teeth, fine curly hair.

No.		Per doz.
1086	Height 4 inches, bust 3 inches	$8 00
1088	" 4½ " " 3½ "	12 00
1090	" 5 " " 4 "	16 00

No. 926 No. 928 Nos. 930 Nos. 932 and 934

Bisque heads with glass eyes open mouth showing teeth, painted eyebrows and eyelashes, long hair with curls on each side in front.

No.		Per doz.
926	Height 3 inches, bust 2½ inches, 12 in box	$1 50
928	" 3½ " " 2½ " 12 " "	1 70
930	" 4 " " 3 " 6 " "	2 50
932	" 4½ " " 3½ " 6 " "	3 00
934	" 5 " " 4 " 3 " "	4 00

No. 944 No. 946 No. 948 Nos. 950 Nos. 952 and 954 No. 956

Bisque heads with beautiful features, open mouth showing teeth, moving eyes, full curly hair with side part and colored ribbon bow

No.		Per doz.
944	Height 3¾ inches, bust 3 inches, 6 in box	$4 00
946	" 4½ " " 3½ " 6 " "	4 50
948	" 4¾ " " 3¾ " 3 " "	6 00
950	Height 5 inches, bust 4 inches, each in box	$7 30
952	" 5½ " " 4 " " " "	8 00
954	Height 5½ inches, bust 4½ inches, each in box	$12 00
956	" 6½ " " 4¾ " " " "	16 00

No. 966 No. 968 No. 970 No. 972

Bisque heads with moving eyes, with real hair, eyelashes, open mouth showing teeth, painted eyebrows, fine curly sewed wig

No.		Per doz.
966	Height 4½ inches, bust 3½ inches, each in box	$8 00
968	" 5 " " 3¾ " " " "	12 00
970	Height 5½ inches, bust 4 inches, each in box	$13 00
972	" 6¼ " " 4½ " " " "	17 50

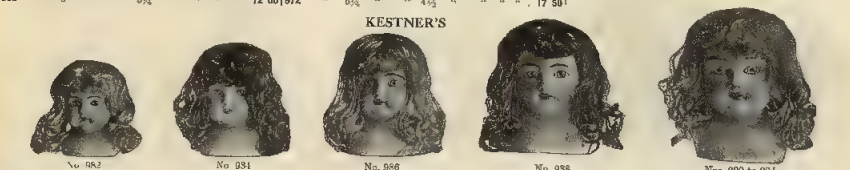
KESTNER'S FINE BISQUE BOYS' HEADS

No. 914 No. 916

Painted mouth, eyes and eyebrows, also hair.

No.		Per doz.
914	Height 3½ inches, bust 2¾ inches, 12 in box	$1 60
916	" 4 " " 3½ " 6 " "	2 80

KESTNER'S



No. 982 No. 984 No. 986 No. 988 Nos. 990 to 994

Extra fine quality bisque heads, Kestner make, beautiful features, open mouth showing teeth, moving eyes, painted eyelashes and eyebrows, fine quality curly sewed wig, packed each in fine carton

No.		Per doz.
982	Height 4 inches, bust 3 inches	$8 00
984	" 4½ " " 3½ "	12 00
986	" 5 " " 3¾ "	14 40
988	Height 5½ inches, bust 4 inches	$16 00
990	" 6½ " " 4½ "	24 00
992	Height 7½ inches, bust 5 inches	$30 00
994	7½ " " 5¾ "	36 00

THE JUNO INDESTRUCTIBLE METAL DOLL HEADS

No. 1020 No. 1022 No. 1024 No. 1026 No. 1036 No. 1038 No. 1048 No. 1050 No. 1052 No. 1054 Nos. 1064 and 1066

No.		Per doz.
1020	Height 3¾ inches, bust measure 2¾ x 2 inches, painted hair and painted eyes, 6 in box	$2 50
1022	Height 3¾ inches, bust measure 2½ x 2 inches, painted hair and painted eyes, 6 in box	4 00
1024	Height 4½ inches, bust measure 3½ x 2¾ inches painted hair and painted eyes 6 in box	6 00
1026	Height 5¼ inches bust measure 4½ x 3¾ inches painted eyes, painted hair mouth showing teeth, 1 in box	8 00
1036	Height 5 inches, bust measure 4 x 2½ inches, glass eyes, painted hair, 4 in box	$8 00
1038	Height 5¾ inches, bust measure 4 x 2¾ inches glass eyes, painted hair, mouth showing teeth, 1 in box	12 00
1048	Height 6 inches, bust measure 4½ x 3 ¼ inches, glass eyes mouth showing teeth, 1 in box	12 00
1050	Height 3¾ inches, bust measure 2 x 1½ inches, painted features, full curly hair, 5 in box	4 00
1052	Height 4½ inches, sewed wig glass eyes, mouth showing teeth 4 in box	7 00
1054	Height 4 inches, sewed curly wig, glass eyes, mouth showing teeth, 4 in box	$8 00
1064	Height 4½ inches sewed curly wig, sleeping eyes, mouth showing teeth, 1 in box	12 00
1066	Height 5½ inches sewed curly wig, sleeping eyes, mouth showing teeth, 1 in box	16 00
1052	Height 3 inches, sewed wig sleeping eyes, mouth showing teeth, 4 in box	8 00
1054	Height 4½ inches sewed curly wig, sleeping eyes, mouth showing teeth, 1 in box	12 00
1064	Height 5½ inches sewed curly wig, sleeping eyes, mouth showing teeth, 1 in box	16 00
1066	Height 6½ inches sewed curly wig, sleeping eyes, mouth showing teeth, 1 in box	24 00

DOLLS—Continued

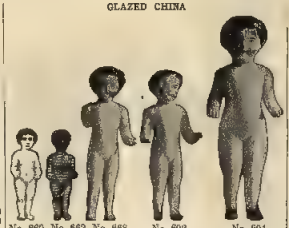
We do not break packages

UNGLAZED CHINA.

No. 664 No. 666 No. 670 No. 674

No.		Per gro.
672	Height 3 inches, ½ gross in box	$2 00
666	" 2½ " jointed arms, ½ gross in box	2 00
674	" 2¾ " " " and legs, ½ gro. in box	2 00
670	Solid china, fancy china bonnet, height 3 inches, ½ gross in box	1 80
684	With long braided hair, height 2¼ inches ¼ gross in box	2 00

GLAZED CHINA



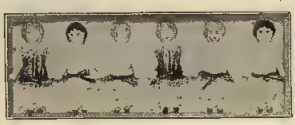
No. 660 No. 662 No. 668 No. 692 No. 694

No.		Per gro.
660	Birthday or Anniversary Cake doll, 1 gross in package	$9 80
662	same as No. 660, Negro, 1 gross in package	1 10
668	Height 2½ inches, ½ gross in box	2 00
692	" 4 " ½ " " "	8 50
694	" 4 " gold shoes, 1 dozen in box	10 50

CHINA DRESSED BABIES

No. 812 No. 814 Nos. 820 and 680

No.		Per doz.
680	Jointed arms, fancy colored knit dress, height 2 inches 1 dozen on card, 1 gross in box	$2 00
812	Solid china baby, with colored dress and baby doll in arms, representing nurse with child, height 4¼ inches, each in a large box	9 60
814	Solid china baby, basque finish, jointed arms, painted hood, eyes and features, colored dress with broad lace collar and lace trimmed skirt, each in box	9 60
820	Bisque baby, jointed arms and legs, flowing hair, painted features, assorted colored, knit dresses, height 32 inches, 1 dozen in box	10 80



No. 816

No.		Per doz.
816	Glazed china baby, assorted colored dresses, lace skirt, gilt belt painted features, painted shoes and stockings, 8 inches, 1 dozen in box	$0 80
818	same as above but with painted gilt shoes, height 4½ inches, ½ dozen in box	1 50
1600	Dressed babies with jointed arms and legs, glass eyes, assorted boys and girls in winter suits with flannel jackets, metal buttons, girl with flannel cap and boy with flannel hat, girl with long hair and boy with short hair, each carries skates, height 3¾ inches, ½ dozen in box	$4 50

No.		Per doz.
1602	Dressed babies with jointed arms and legs, glass eyes, assorted boys and girls in winter costume, boy with flannel suit and winter cap, girl with plaid skirt, flannel coat with muff and hat with veil, boy carries sleigh, height 3½ inches, ½ dozen in box	$4 00

CELLULOID

No. 850 No. 852 Nos. 830 and 832

Jointed arms and legs, painted features and hair, painted shoes and stockings.

No.		Per doz.
850	Height 5 inches, 1 dozen in box	$4 00
852	" 6½ " each in box	8 00

Nos. 834 and 836 No. 838 No. 840

Jointed arms, stiff legs, painted features and hair, bare feet.

No.		Per doz.
830	Height, 3½ inches, 1 dozen in box	$1 70
832	" 6 " ½ " " "	4 00
836	" 9 " ½ " "	10 50
838	" 10½ " each in box	16 00
840	" 12½ " "	24 00

CHINA DOLL HEADS

No 880 No. 882 No. 884 No. 886 No. 888 No. 890 No. 892 No 894 No. 896 and 898 No. 900 No. 902 No. 904

No.		Per doz.
880	Height 3¼ inches, bust measure 2¾ inches, 1 dozen in box	$0 80
882	Height 3½ " " " 2¾ " " " "	1 30
884	Height 4 " " 3¼ " 6 in box	1 60
886	Height 4½ " " 3¾ " 6 " "	2 50
888	" 4¾ " " 3¾ " 4 " "	2 50
890	" 5 " " " 4½ " 1 " "	3 00
892	" 5½ " " " 4½ " ½ " "	4 00
894	" 6 " " " 5 " 3 " "	5 50

China doll heads, with gold painted necklace with glass jewels in imitation rubies and sapphires.

No.		Per gro.
896	Height 3 inches, bust 2½ inches, 1 dozen in box	$10 00
898	" 3½ " " 2¾ " 1 " " "	16 00
900	" 3¾ " " 3 " 1 " " "	18 00
902	" 4½ " " 3½ " ½ " " "	24 00
904	" 4¾ " " 3½ " ½ " " "	30 00

CORN POPPERS.

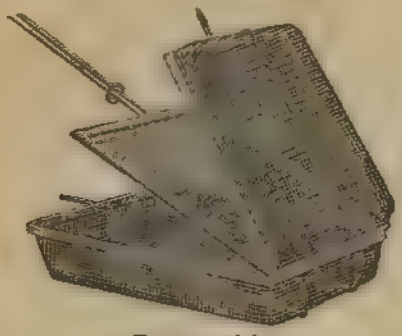
Showing Popper open and closed.

Rotary.

Per Dozen

No. 7—ROTARY; CAPACITY 1½ QUARTS; Body Wire, 8 Mesh to inch; Tin Bound Edges; Sheet Iron Covers; 6 Gauge Wire Handle 18 inches Long, with Wood Grip; 6 Gauge Wire Rest, to set on stove; Made to Rotate by moving Wood Spool on Spiral Rod; Diameter 4¾ inches, Length 6¾ inches; Weight per dozen about 19 lbs..... $5.00

One Dozen in a Case

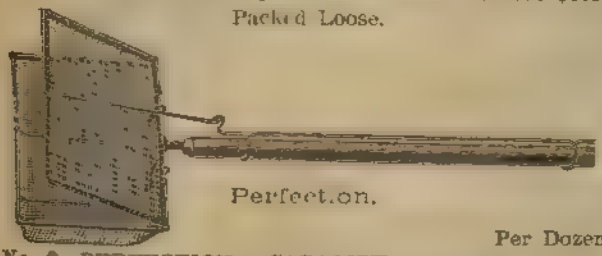


Reversible.

Per Dozen

No. 3—REVERSIBLE; CAPACITY 2 QUARTS; Body Wire, 8 Mesh to inch; Tin Bound Edges; 15 Gauge Brace Wires; Center made of 4 Mesh to inch Wire, to sift unpopped kernels; 18-inch Wood Handle, Red Stained, Dimensions of each Popper: Width 5 inches Length 6¾ inches, Depth 2⅛ inches; Weight per dozen about 7½ lbs..... $4.50

Packed Loose.



Perfection.

Per Dozen

No. 6—PERFECTION; CAPACITY 1 QUART; Body Wire, 8 Mesh to inch; Tin Bound Edges; 3 Mesh to inch Wire Cover; 12 Gauge Brace Wires; 10 Gauge Wire Lever; 24-inch Wood Handle, Red Stained; Width 5½ inches, Length 7 inches, Depth 2½ inches; Weight per dozen about 12 lbs..... $3.75

One Dozen in a Case.

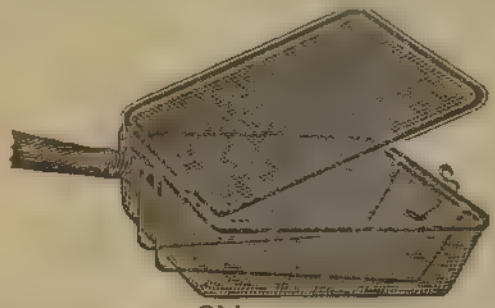
NOTE.—No. 6 Perfection Popper is Large Family Size, with Extra Long Handle; Strong Construction in Every Part; the Lid is Locked or Opened by a Light Motion of the Thumb at the End of the Handle; A Coarse Screen in the Top enables the Operator to Sift out the half-popped kernels into the fire.

Round.

Per Dozen

No. 4—ROUND; CAPACITY 1 QUART; Body Wire, 8 Mesh to inch; Tin Bound Edges; I. C. Tin Cover; 12 Gauge Brace Wires and Catch; 20-inch Wood Handle, Red Stained; Diameter 6 inches, Depth 2¾ inches; Weight per dozen loose, about 5½ lbs..... $2.25

Six Dozen in a Case.

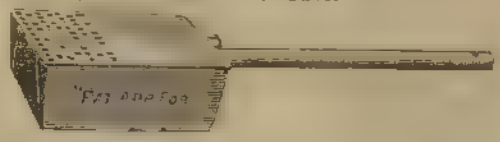


Oblong.

Oblong; Body Wire, 8 Mesh to inch; Tin Bound Edges; 12 Gauge Brace Wires and Catch; 18-inch Wood Handle, Red Stained.

Nos.	1	2	3
Capacity, quarts	1	2	4
Width, inches	[illegible]	6½	9¾
Length, inches	7	9½	13½
Depth, inches	2¼	3	3½
Weight per dozen about, lbs.	5	8	14
Per dozen	$2.25	4.50	6.50

Packed: No. 1, Three and Six Dozen; No. 2, Six Dozen; No. 5, Two Dozen in a Case.



UTILITY.

Made of 30 Gauge Cold Rolled Polished Steel; Folded Ends, Rimmed Edge; Hollow Steel Handle, Securely Riveted; Fitted with Removable Perforated Cover, with Riveted Handle and Clamp; By a Single move of the Clamp the Cover can be Instantly Removed for Cleaning Purposes; Can be used on any Stove or Furnace; By means of the Perforations in the Cover the Unpopped Kernels can be Sifted out without Removing the Cover.

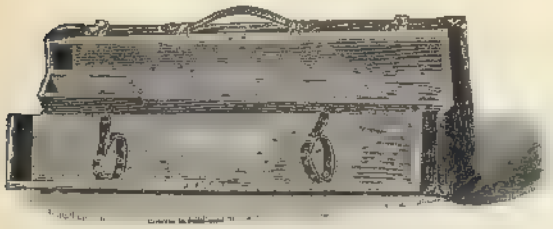
Per Dozen

No. 2U—UTILITY; Capacity 4 Quarts; Size of Pan 9x7x3½ inches; Length of Handle 14 inches; Weight per dozen about 25 lbs.... $6.00

One Dozen in a Case.

ELECTRICIANS' NEW HAND TOOL CASE

No. 1003

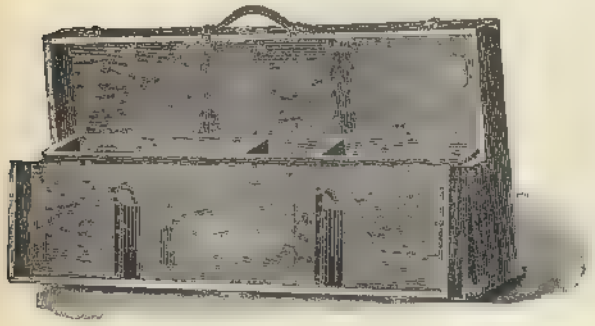


Made of hardwood, handsomely finished, furnished with brass lock, leather handle with rings for shoulder strap, metal clasps, metal corners, and removable tray. Will hold 24-inch electricians' bits and a 24-inch bit extension.

	Length, Ins.	Height, Ins.	Width, Ins.	
Outside dimensions ..	25½	9⅛	5¼	
Inside dimensions	24⅝	8⅜	1¾	
Price, each				$4 50

CARPENTERS' NEW HAND TOOL CASE

No. 35



Made of selected hardwood, paneled sides, brass lock, leather handle with rings for shoulder strap metal clasp and corners, with necessary racks, hooks and trays. Weight, empty, 15 lbs

	Length, Ins.	Height, Ins.	Width, Ins.	
Outside dimensions...	34½	17	8	
Inside dimensions ...	33	15¾	5	
Price, each				$10.00

CARPENTERS' EMPTY TOOL CHESTS

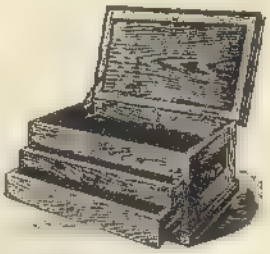
Strongly made of hardwood filled and varnished, with two trays, lock and key, dove-tailed corners, panel lid and heavy band mouldings.

No 260. 28x15x14 inches, two sliding trays, and saw rack. Price ....$ 8 75

No. 260½ 31x15x14 inches, two sliding trays, and saw rack. Price . 9 38

No. 270. 33x18x16 inches, two sliding trays, and saw rack. Price .. . 10.50

MACHINISTS' TOOL CHESTS



These Chests are made of selected hardwood and are furnished with Yale pattern locks, nickel-plated drawer pulls and cup handles. Each chest is provided with a brass elbow to hold up lid, and a device for locking all the drawers at once, automatically.

No.	Price	Length	Width	Height	Drawers
1	$7.15	20	13	10	2
2	9.00	22½	14	12	3
3	11.25	24½	14½	12	3

MACHINISTS' TOOL CASE

No. 75

This Case can be carried conveniently from place to place; made of chestnut, handsomely finished, has four drawers 3 inches deep and one 3½ inches deep, complete with a brass Yale pattern lock, leather handle and metal corners; the lid locks at the bottom and when open can be slid back over the drawers like the lid of a sectional book-case. Outside dimensions, 19x9x11½ inches. Price each $7 00

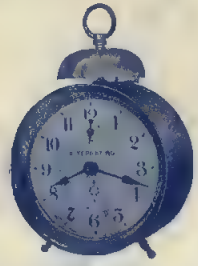
BRASS CHECKS

We are prepared to stamp checks to order, if desired Prices on receipt of specifications

High Grade Alarm Clocks and Specialty Clocks

Alert Nickel Alarm Clock, (Waterbury) 1 day time, 4 in. dial, 5⅞ in. high, an extra loud bell at back, 3¾ in tinely nickel case with second hand and alarm indicator, guaranteed, high grade new clock at low price. Each ..... .78

NEW ALTERNATING CLOCK



Alternating Alarm Clock. 4⅛ in. nickel plated case, rings for 25 seconds, every 20 seconds for 15 minutes, shut off lever, 38 hour movement .... .80

Tatto (New Haven). A high grade clock in every respect. Guaranteed One that is hard to surpass in finish and quality and other points making the clock especially desirable. Extra long intermittent alarm Bell at back, with check lever. Each 1.10

SPASMODIC.

MUST GET UP.

Spasmodic Alarm Clock. (Waterbury), long alarm with intermission, rings, stops and rings again until you wake up, a regular 3¾ in. alarm bell at back will ring for every half minute, be silent one half minute, and do so alternately for 15 minutes, can be stopped at pleasure. 4¼ in. dial, 5⅞ in. high. Each 1.10

Must get up. (Waterbury.) An extra loud alarm clock with bell at back. Bound to wake the soundest sleeper. Can be stopped at will. Extra long ring. Embodying all durable features. Each 1.05

Electric Alarm Clock
PLAIN AND COMBINATION

The Only Perfect Electric ALARM CLOCK in the Market

No. 314. "Get-Up" Electric Alarm Clock is operated with dry battery without any connections to make, complete and ready for use, will ring until you get up, no danger of shock, can be stopped at will 8 in high, 12½ in. long, in nickel plate or copper oxidized finish Each 2.50

No. 315. Is a combination Flash Light and Bank Alarm Clock. A big seller.

No. 315. Flash Light Alarm Clock. This is same as our No. 314, but is fitted with a long insulated wire cord with bulb end, by pressing bulb it illuminates the face of clock, can be read any time by sleeper from bed, also has a bank with lock and key, an entirely new item for which big demand is being created, every one guaranteed. Each 3.90

NOVELTY MUSICAL CLOCKS

Plays Two Popular Airs.

No. 44. Novelty Musical Clock, with visible works, solid Nickel case, high mirror polish, heavy glass front and glass sides, extension base, handle on top, fine time keeper, size 6x4x3, white dial, second hand. Plays two popular airs for several minutes, sets same as ordinary alarm. Luminous front. Exceptionally handsome. Each 2.25

NICKEL ALARM CLOCKS

STANDARD MAKES GUARANTEED GOODS

Midget Size Nickel Clocks

About One-half Size of Regular

La Sallita.

Sting.

Wasp.

La Sallita. Miniature size clock and remarkably good timekeeper. 2 in. white dial. Bevel glass. Each one in tin box. A neat one.
Each ..... .55

Sting. (New Haven.) One day time. Seamless, highly polished nickel case. 2 in. dial. Also can be had enameled in colors, assorted.
Each ..... .72

Wasp. (Waterbury.) One of the best known of the miniature or junior size clocks in the market. Guaranteed. Nickel, seamless case 2 in. dial, plain. One day time.
Each ..... .70

Wasp. As above with alarm 1.05

Nickel Alarm Clocks--Full Size

The Queen.

Shure Rouser

No. 1008. "The Queen" Alarm Clock, full size, highly polished nickel case, 4 in. dial, gilt reflector, long, loud alarm with a patent shut-off lever, alarm setting dial on front with second hand. While this is a low price clock it is guaranteed to give satisfaction and we consider it one of the best values in the line.
Each ..... .50

No. 237. "Shure Rouser." The Peerless Nickel alarm clock. Full size of a guaranteed standard make. Highly nickel plated and burnished. Seamless case. Loud alarm. Good time keeper. Your money back if you are dissatisfied.
Each ..... .57 [Case lots 50 clocks each .55

"The Call" Alarm Clock, (Waterbury Clock Co.), 4 in dial, polished nickel plated seamless case, alarm setting dial on front, bell on top, good strong, loud sounding alarm, guaranteed time keeper, best low price clock made.
Each ..... .65

LaReina Alarm Clock

Receding Shape—2 ½ in. Dial

"La Reina." Full size. A reliable clock of neat design, dial being smaller than the case. Seamless, nickel plated and highly burnished case. Good long ringing alarm.
Each ..... .65

Sunrise

Calendar

Sunrise Alarm. (Waterbury.) A clock with the reputation long ago established for its superiority and workmanship, and time keeping quality. Standard guaranted time keeper.
Each ..... .70

Monitor Calendar Alarm Clock. (Waterbury Clock Co.) Strong nickel case, finely polished, 1 day time alarm with calendar figures in the margin, 4 in. dial, 5¾ in. high, guaranteed fine time keeper, and accurate date indicator.
Each ..... .75

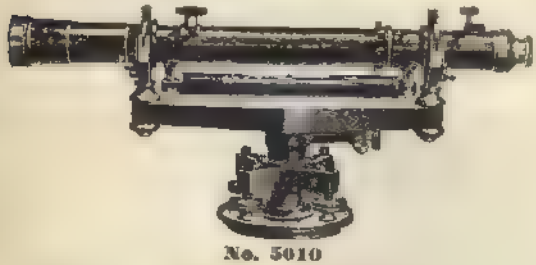
Auto.

Dual.

Auto Long Alarm Clock (New Haven Clock Co.). A strictly high grade article of the latest pattern, just brought out, and forecasts to be a heavy seller. Seamless polished nickel case. Each ..... .75

The "Dual" Clock is with long intermittent alarm, so constructed that the alarm may be stopped by a switch lever at pleasure. It is Waterbury's latest high grade alarm clock and fully guaranteed; strong, polished nickel plated seamless case with alarm bell in back, alarm setting dial in front, gilt reflector; large size, best clock made.
Each 1.10

EXTRA-FINE ENGINEERS' Y LEVELS



No. 5010

5010—Achromatic terrestrial telescope 18 inches, with dust cap and sun shade, object-glass 1⅜ inches, with improved rack movement, eyepiece with patent micrometer focusing arrangement with lock nut. Fine sensitive spirit level graduated on the glass, adjustable vertically and horizontally. The bar is of gun metal and shaped to combine greater strength with least weight. The telescope rests in Y's, one of which is adjustable for altitude, and laterally they are provided with improved adjustable stop for so placing the telescope that the cross-hairs are vertical and horizontal. It is locked in the Y's by a patented arrangement, dispensing with pin bolts. The leveling screws are made of German silver. The clamp and tangent screws are attached to the bar and revolve with it, so that they are always equally accessible. Improved tangent screw of German silver with counter-spring.

Instrument complete, with adjusting pins, waterproof cover, etc., in fine polished mahogany box and with No. 5178 split tripod $130.00

No.	Telescope	Object Glass	Price Each, Net Cash
5010	18 in.	1⅜ in. Dia.	$130 00
5012	20 "	1⅜ " "	135.00
5013	22 "	1⅜ " "	140.00

ENGINEERS' RAILROAD Y LEVEL

5120. Railroad Y level telescope 18 inches, object glass 1⅜ inches diameter. Each with No. 5178 split tripod.....$100.00 net

ARCHITECTS' OR BUILDERS' Y LEVEL

5110. Architects' or builders' Y level, achromatic terrestrial telescope 11 inches, with dust shade and cross-hairs, graduated spirit level, object glass 1⅛ inches, with rack movement, eyepiece adjustable to focus the cross-hairs. Horizontal circle 3 inches, divided to degrees with vernier reading to 5 minutes. A most serviceable and compact instrument. Level complete, with metal trivet, plumb-bob and adjusting pins, in polished mahogany box and with No. 5176 hardwood tripod .....$45.00 net

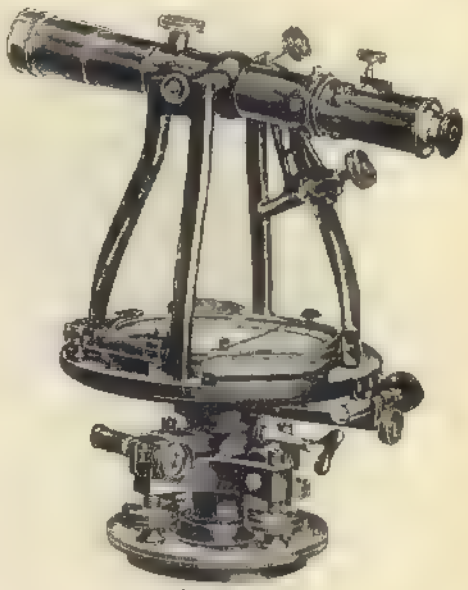
5111. Architects' or builders' Y level like No. 5110, but with tangent screw. .....$50.00 net

5112. Same as No. 5110 compass, but divided on raise ring to degrees, improved needles about 3 inches, horizontal circle 3¾ inches.....$60 00 net

5113. With compass like No. 5112, but with tangent screw. Each .....$65 00 net

EXTRA-FINE ENGINEER'S TRANSITS

Plain



No. 5030

5030. Engineers' transit (for repeating angles) with achromatic terrestrial telescope 13¾ in., with clamp and tangent screws of improved pattern with counter spring, object glass 1⅜ inch, with dust cap and sun shade, improved rack-movement, eyepiece with patent micrometer focusing arrangement with lock nut; stadia hairs. Compass ring graduated on solid silver, variation plate. Improved needle about 4½ in., horizontal limb, 6 in., graduated on solid silver to half degrees and numbered two verniers at about 45° with telescope, reading to one minute, with hinged reflectors lined white. Two fine graduated spirit levels to horizontal limb. All leveling and tangent screws of German silver, tangent screws of improved pattern with counter-spring. The centres are extra long and of different kinds of metal, to reduce friction. Shifting centre.

Instrument complete, with plumb bob, magnifying glass, adjusting pins, waterproof cover, etc., packed in fine polished mahogany box and with No. 5178 Split Tripod .....$185.00 net

5032. Engineers' Transit like No. 5030, but telescope 11½ in., needle about 5 in., horizontal limb 6½ in. Instrument complete, with No. 5178 Split Tripod, etc.....$190.00 net

Other styles of instruments on application. We are also prepared to furnish mountain and mining transits, theodolites, tachymeters, plane tables, sextants, levels, compasses, spirit, surveying, etc., field glasses, clinometers, also extra tripods, leveling rods and poles, etc.

BLASTING MATERIALS

DYNAMITE

The dynamite is put up in strong paper shells or cartridges, which, previous to filling, are dipped in melted paraffine. The smaller sizes, having a diameter of 1¼ inches and under, are packed in pasteboard boxes containing 10 lbs. each. Five of these boxes are enclosed in a strong wood case, which can be as conveniently handled and shipped as any other merchandise

The cartridges are 8 inches long and 1¼ inches in diameter, unless otherwise ordered (any require size is furnished to order). A 50-lb. case of 1¼ x 8 inches contains about 100 cartridges, but may contain more or less; it is sold by weight only. 25 lb. case furnished if desired.

PRICES PER HUNDRED POUNDS

No. 4.	20 per cent nitroglycerine			$13.00	No. 2	40 per cent nitroglycerine			$15.00
" 4X.	25	"	"	13.50	" 2X.	45	"	"	15.7[illegible]
" 3.	27	"	"	13.70	" 2XX.	50	"	"	16.5[illegible]
" 3X.	30	"	"	14.00	" 1.	60	"	"	18.[illegible]
" 2C.	33	"	"	14.30	" 1XX.	75	"	"	20.2[illegible]
" 2B.	35	"	"	14.50					

Other sizes and grades made to order

Nos. 4, 4X, 3. For clay, shelly rock, frozen earth and light work; and in quarries when rock is to be split, but not shattered.

Nos. 3X, 2C, 2B, 2. For moderately hard rock, copper, lead and other ores, stumps and ice.

" 2X, 2XX. For hard rock, ores and iron.

" 1, 1XX For extremely hard rock, ores, breaking iron and steel, and submarine blasting.

AMMONIA POWDER

No. 4XA.	25 per cent			per 100, $13.00	No. 2CA.	33 per cent			per 100, $13.8[illegible]
" 3XA.	30	"		" 13.50	" 2A.	40	"		" 14.5[illegible]
" 3XA.	30	"		" 13.50	" 1A.	60	"		" 17.5[illegible]

CONTRACTORS' POWDER

The contractors' powder is similar in appearance and composition to common blasting powder, and is used in much the same manner and for the same purposes as that article, differing in the respect that it is fully 50 per cent stronger, and combines the pushing or lifting effect of black powder with the shattering force of dynamite.

It is largely used for blasting clay, frozen earth, rock, stumps, etc. Price per 100 lbs., $11.60

12½ lbs. paper bags, 50 lbs. in a case. We do not break cases.

Powder or dynamite cannot be shipped with other goods.

Also fuse, caps, wires, reels, etc.

ELECTRIC BLASTING APPARATUS

Smith	No. 3,	capacity	20 to 30 hole batteries	$25.00	Pull up	No. 5	capacity	75 to 100 hole batteries	$75.0[illegible]
"	" 4,	"	40 " 50 " "	50.00	Victor	" 1,	"	5 " 8 " "	15.0[illegible]
Pull Up	" 3,	"	20 " 30 " "	25.00	Lion	" 1,	"	1 " 2 " "	7.5[illegible]
"	" 4,	"	40 " 50 " "	50.00					

WOVEN MANILA ROPE BLASTING MATS

These blasting mats are used for covering over holes where the blast is to be made, to keep the small stones or spalls from flying up and injuring workmen and surrounding property. We make these mats to order of any size and diameter of rope.

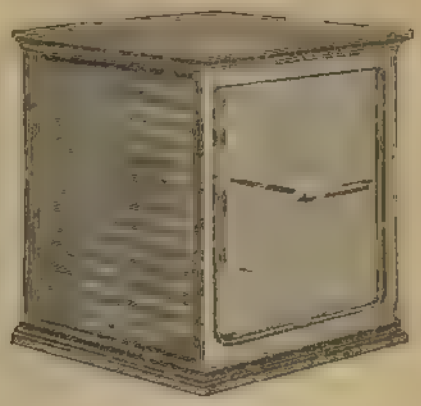
CHEESE SAFES.

Round.

Each

Round—Varnished Wood Frame; 12 Mesh to Inch Green Wire Cloth; 6 Upright Wood Supports and 1 Inside Circular Wood Brace; Hinged Cover; Diameter 24 inches; Height 12 inches; Weight each about 15 lbs..... $3.00

One in a Crate.



Square Cabinet.

Each

Square Cabinet—Varnished Wood Frame; Sliding Folding Doors; 12-inch Mesh to inch Green Wire Cloth on Three Sides; Round Revolving Wood Rest in Bottom; Wood Shelf; Height 24 inches; Width 22 inches; Depth 24 inches; Weight each about 20 lbs. $5.00

One in a Crate, Knocked Down.

CHEESE KNIVES.

Enterprise.

Painted Red and Blue; Cast Iron Frame, Self-Gauging; Tinned Steel Knife, Blade 9½ inches Long, fastened to Rack by 3 Screws; Can be Raised 10½ inches; Wood Table 19 inches Diameter; Removable Perforated Tin Cover 14 inches High, 19 inches Diameter.

Each

No. 3—ENTERPRISE, with Cover; Height over all 25½ inches; Weight each about 76 lbs..$16.00

One in a Crate.

DRIED BEEF CUTTERS.

Enterprise.

Cast Iron Frame, Japanned; Swinging Steel Knife 12½ inches Cut, with Adjustable Sharpening Device, can be Regulated to Cut up to ⅛ inch Thick, by Adjusting Small Bolt Holding Connecting Rod; Automatic Feed; Length of Handle 3½ inches; Sweep of Knife 11 inches; Width over all 12 inches; Height over all 17½ inches; Length over all 22 inches.

Each

No. 23—ENTERPRISE; Weight each about 39 lbs . . . $8.00

Packed Loose

RAZORS.

ASSORTMENTS.

Per asst.

No. 1906G. **Razor Assortment,** Contains **Twelve of the Very Finest Quality Razors,** Assorted Sizes and Points, Fancy Inlaid Black and White Handles, Leatherette Case, Glass Front with Nickel Plated Mounting, Size of Case, 10 x 18 in., Razors Complete with Case $30.00

No. 1905G. **Razor Assortment,** Contains **Twelve Razors,** the same as illustrated in the Roll below, Complete with Glass Case 30.00

Per asst.

No. 1905R. **Razor Assortment,** Contains **Twelve Extra Hollow Ground Razors,** Full Crocus Finish, Round and Square Points, Assorted White and Black Handles, in a Silk Plush Lined Leather Roll, Razors in Roll Complete $30 00

No. 1906R. **Razor Assortment,** Contains **Twelve Razors,** the same as illustrated at top of page, in a Silk Plush Lined Leather Roll. Razors in Roll Complete 30.00

EXPRESS WAGONS.

WROUGHT STEEL GEAR WAGONS.

On wagons No. 0 and larger a brace is supplied to rear axle, and is attached to the center of axle, and is bolted to the wagon bottom.

No. **02**, Body 11x22, Wheels 8 and 14 inches, "C" Plate, Steel Tire, Per dozen, $24 00
" **0**, Body 12x24, Wheels 8 and 12 inches, "C" Plate, Steel Tire, Per dozen, 30 00
" **1**, Body 13x26, Wheels 10 and 14 inches, "C" Plate, Steel Tire, Per dozen, 34 00
" **2**, Body 14x28, Wheels 12 and 16 inches, "C" Plate, Steel Tire, Per dozen, 38 00
" **3**, Body 15x30, Wheels 14 and 18 inches, "C" Plate, Steel Tire, Per dozen, 42 00

Packed 6 to a crate.

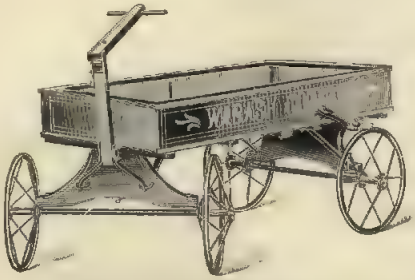
SPECIAL HEAVY WAGON.

No. **5**, Body 18x36 inches; Wheels 14 and 20 inches; 16 Spokes, heavy Wire and Tires, 9-16 Steel Axles, Per doz., $60 00

Packed 3 to a crate.

Weight Per Dozen.

Fo 02, 110 pounds. No. 0, 150 pounds. No. 1, 190 pounds. No 2, 215 pounds. No. 3, 240 pounds. No. 5, 365 pounds
The above are average weights.



WABASH COASTER WAGON.

Box 16 inches wide, 34 inches long and 5 inches deep outside.

Wheels all 11 inches. Axles ½ inch Round Steel.

Wabash Coaster Wagon No. 37 is designed and built to serve as a coaster wagon as well as a general purpose toy wagon that will carry any load from a sack of grain, a can of milk, a bushel of coal or a cake of ice.

Has five hardwood strips across the bottom to strengthen it; has two strap bolts riveted to the sides which pass through the bottom and midle cross piece with nuts on the bottom ends. By this means the full strength of the sides support the bottom making a truss frame. The corner pins prevent the box shifting on the bottom. The strips around the top edge bind the box, protect the sides and add a handsome finish.

The Gear is the simplest possible construction. Made of hard wood and well braced from the box bottom forward and back. The front wheels turn under to the center, which permits the wagon to turn on a narrow walk.

The wheels, the foundation of the wagon, are Wabash Wheels in every sense, being their own design and invention. They have a Tee Steel rim of light weight and superior strength. Wabash wheel rims never settle between the spokes to cause that disagreeable bumping, pounding noise as is common with other steel wheels. By reason of the substantial rim the spokes may be drawn absolutely tight, thus insuring a true and noiseless wheel.

The Gear is finished in a handsome bright red, the body on the natural wood trimmed with red, and all handsomely ornamented and striped.

No. **37**, Steel Tire, - - - - - - - - - Each, $4 00
" **370**, Rubber Tire, - - - - - - - " 5 00

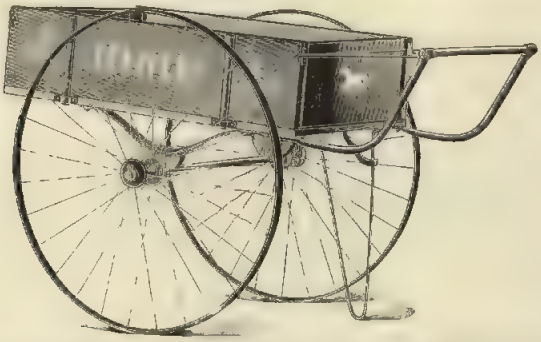
MORLEY-MURPHY HARDWARE COMPANY, GREEN BAY, WIS.

THE "CYCLONE" WAGON.

The "Cyclone" is the most popular cycle wagon on the market, owing to the following facts: It has the deepest body, it is handsomest, best finished, strongest and easiest running. Wrought steel front gears. The body is finished by hand, in vermilion, nicely striped with blue and stenciled. The inside is painted blue. Tinned wheels, not lead plated. The seat and seat boards fold down, making a flush bottom.

No. **501**, Body 14x32½ inches, Steel Tire Wheels, 12 and 18 inches, Weight per dozen 375 pounds, Per dozen, $60 00
Packed six to a crate.

DELIVERY CARTS.



Body 20x37x8 inches, edges ironed, side and end boards are detachable, has swinging rest which, when either up or down, is locked by springs; ¾ inch axle, wheels 28 inches, 24 spokes No. 8 wire, rim 1½x$\frac{9}{32}$ inch half oval steel.

No. **1**, Steel Wheels, Weight 85 pounds, - - - - - - Each, $8 00
" **1**, Wood " " 85 " - - - - - - " 9 00

Body 32x20x9 inches, axles ⅞ inch, wheels 30 inches, 28 spokes of $\frac{9}{16}$ inch wire, rim 1⅜x$\frac{5}{16}$ inch half oval steel.

No. **5**, Steel Wheels, Weight 77 pounds, - - - - - - Each, $8 50
" **5**, Wood " " 77 " - - - - - - " 9 00

Body 40x24x10 inches, axle ⅞ inch, wheels 36 inches, 28 spokes of $\frac{9}{16}$ inch wire, rim 1½x⅜ inch half oval steel.

No. **6**, Steel Wheels, Weight 95 pounds, - - - - - - Each, $10 50
" **6**, Wood " " 95 " - - - - - - " 11 50

MORLEY-MURPHY HARDWARE COMPANY, GREEN BAY, WIS.

SOUTHERN COTTON SCALES.

FAIRBANKS'.

Selected Hardwood Frame, Varnished, secured with Wrought Iron Bolts and Malleable Iron Braces at Joints; Wrought Iron Cross Bars between Legs; Wrought Iron Levers, Chain Downhauls and Hooks; Gas Iron Poises with Steel Hangers. Height under Cross Beams 7 feet; Floor Space required 8 feet 11 inches by 3 feet and 4 inches; Figures and Lines Stamped and Enameled Black. Weighing by Pounds.

Scales, Complete with Beam, Cotton Frame, Chain Downhauls and Hooks

CAPACITY 700 POUNDS, BY POUNDS.

	Each
No. 431—JAPANNED IRON BEAM, NOTCHED TOP	$51.00
No. 433—POLISHED STEEL BEAM, NOTCHED TOP	60.00
No. 435—JAPANNED IRON BEAM, SMOOTH TOP.	60.00
No. 437—POLISHED STEEL BEAM, SMOOTH TOP	60.00

CAPACITY 800 POUNDS, BY POUNDS

No. 432—JAPANNED IRON BEAM, NOTCHED TOP	$60.00
No. 434—POLISHED STEEL BEAM, NOTCHED TOP	70.00
No. 436—JAPANNED IRON BEAM SMOOTH TOP	60.00
No. 438—POLISHED STEEL BEAM SMOOTH TOP	70.00

One in a Bundle; Weight Each about 155 lbs.

Beams Only.

For Fairbanks' Southern Cotton Scales.

CAPACITY 700 POUNDS, BY POUNDS

	Each
No. 200F—JAPANNED IRON, NOTCHED TOP..	$22.00
No. 201F—POLISHED STEEL, NOTCHED TOP..	32.00
No. 202F—JAPANNED IRON, SMOOTH TOP.....	22.00
No. 203F—POLISHED STEEL, SMOOTH TOP...	32.00

Weight Each about 40 lbs.

CAPACITY 800 POUNDS, BY POUNDS

No. 204F—JAPANNED IRON, NOTCHED TOP..	$27.00
No. 205F—POLISHED STEEL, NOTCHED TOP	37.00
No. 206F—JAPANNED IRON SMOOTH TOP	27.00
No. 207F—POLISHED STEEL, SMOOTH TOP	37.00

One in a Bundle. Weight Each about 50 lbs.

‡ELLIS COTTON SCALE FRAMES.

NOTE.—No Beam or Poises furnished unless ordered separately.

Each

‡No. 2 SF—Selected Varnished Hardwood Cross Beam and Legs; Complete with Forged Wrought Iron Chain Downhaul Weighing Hooks and Chain; Length of Cross Beam 7 feet. Height over all 8 feet; Frame Secured with Wrought Iron Braces and Bolts; Floor Space Required 3x7 feet. Weight per frame complete about 115 lbs...$25.00

One Frame, Complete, Tied in a Bundle.

COTTON HOOKS.

Each

No. 006—Cotton Hooks, Forged from Wrought Iron. Length [illegible] feet 4 inches. To Fit Southern Cotton Scales. Weight each about [illegible] lbs..... $4.00

CHAIN DOWNHAULS.

Each

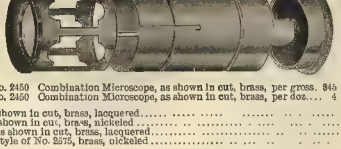
No. 003—Chain Downhauls Forged from Wrought Iron. Length [illegible] feet. To Fit Southern Cotton Scales. Weight each about 2½ lbs. $2.00

Packed Loose.

‡Goods marked thus (‡) are not carried in stock and can only be furnished by shipment direct from factory.

MAGNIFYING GLASSES.

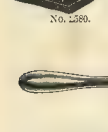
No. 2455.



No. 2450 Combination Microscope, as shown in cut, brass, per gross. $45 00
No. 2450 Combination Microscope, as shown in cut, brass, per doz.... 4 00

No. 2575.

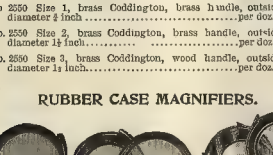
No. 2455 Seed Microscope, as shown in cut, brass, lacquered.....per doz., $5 00
No. 2456 Seed Microscope, as shown in cut, brass, nickeled..... " 2 70
No. 2575 Tripod Microscope, as shown in cut, brass, lacquered..... " 6 50
No. 2576 Tripod Microscope, style of No. 2575, brass, nickeled..... " 9 50



No. 2580.

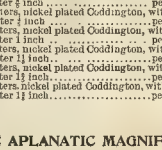
LINEN PROVERS—Non-Achromatic.

No. 2580 Nickeled Linen Prover, opening ¼x¼ inch.....per doz., $ 3 50
No. 2581 Nickeled Linen Prover, opening ¼x½ inch..... " 3 50
No. 2582 Nickeled Linen Prover, opening ¼ inch, round..... " 3 50
No. 2583 Brass Linen Prover, opening 1 inch, square..... " 26 50



No. 2550.

BRASS CODDINGTONS.



No. 2533. 20 Millimeters.

No 2550 Size 1, brass Coddington, brass handle, outside diameter ⅝ inch.....per doz., $17 00
No. 2550 Size 2, brass Coddington, brass handle, outside diameter 1¼ inch.....per doz., 20 00
No. 2550 Size 3, brass Coddington, wood handle, outside diameter 1½ inch.....per doz., 24 00

No. 2533 15 millimeters, nickel plated Coddington, with folding cover, diameter ⅝ inch.....per doz., $21 00
No. 2533 20 millimeters, nickel plated Coddington, with folding cover, diameter ¾ inch.....per doz., 24 50
No. 2533 25 millimeters, nickel plated Coddington, with folding cover, diameter 1 inch.....per doz., 28 50
No. 2533 30 millimeters, nickel plated Coddington, with folding cover, diameter 1¼ inch.....per doz., 33 00
No. 2533 35 millimeters, nickel plated Coddington, with folding cover, diameter 1½ inch.....per doz., 37 50
No. 2533 40 millimeters, nickel plated Coddington, with folding cover, diameter 1¾ inch.....per doz., 42 00

RUBBER CASE MAGNIFIERS.

No. 650. No. 651. No. 6103.

No. 650 Single lens, diameter ⅝ inch.....per doz., $ 4 00
No. 656 Single lens, diameter 1 inch..... " 5 60
No. 662 Single lens, diameter 1¼ inch..... " 7 70
No. 668 Single lens, diameter 1½ inch..... " 9 80
No. 674 Single lens, diameter 1¾ inch..... " 12 60
No. 678 Single lens, diameter 2 inch..... " 16 80
No. 651 Two lenses, diameter ⅝ and ⅝ inch..... " 7 00
No. 657 Two lenses, diameter ⅝ and 1 inch..... " 9 80
No. 663 Two lenses, diameter 1¼ and 1¼ inch..... " 12 60
No. 669 Two lenses, diameter 1¼ and 1½ inch..... " 16 80
No. 675 Two lenses, diameter 1¼ and 1¾ inch..... " 22 40
No. 679 Two lenses, diameter 1¾ and 2 inch..... " 28 00
No. 6103 Three lenses, diameter ⅝, ⅝, ⅝ inch..... " 9 80
No. 6112 Three lenses, diameter ⅝, ⅝, ¾ inch..... " 12 60
No. 6121 Three lens s, diameter ⅝, ⅝, 1 inch..... " 16 80

THE APLANATIC MAGNIFIER.

For the Physician, the Botanist and the Scientist.

No. 2360. No. 2559

As its name implies, gives a perfectly flat field of great brilliancy and exquisite definition, entirely free from spherical or chromatic aberration.

No. 2559 Folding.....each, $1 50
No. 2560 With handle..... " 1 30

All Orders Filled Same Day Received. No Delay.

FINE FRENCH COMPASSES.

No. 2700.

No. 2702.

No. 2705.

No. 2707.

No.			Per Doz.
2700	Brass case, with silvered metal dial, brass cap to needle and stop	40 M. (1 3-5 in.)	$ 7 50
		45 " (1 4-5 ")	8 00
		50 " (2 ")	8 50
2702	Brass case, with silver metal dial. full divisions, agate cap and stop	40 " (1 3-5 ")	11 00
		45 " (1 4-5 ")	11 50
		50 " (2 ")	12 00
2705	Brass case, with silvered metal dial, brass cap to needle, stop and snap cover	40 " (1 3-5 ")	10 00
		45 " (1 4-5 ")	10 50
		50 " (2 ")	11 00
2707	Same as above, but with jeweled cap to needle and full divisions on dial	40 " (1 3-5 ")	14 00
		45 " (1 4-5 ")	14 50
		50 " (2 ")	15 00

Our line of compasses is complete. Guaranteed as represented. All orders filled same day received. No delay.

No. 2715.

No. 2725.

No. 2723.

No. 2734.

			Per Doz.
No. 2725	Heavy nickel-plated case, with pull-off cover, silvered metal dial, full divisions, fine quality bar needle, jeweled, automatic stop	50 M. (2 in.)	$33 00
		60 " (2 2-5 ")	36 00
		70 " (2 4-5 ")	42 00
		80 " (3 [illegible] ")	50 00
No. 2723	Heavy brass case, with double bottom, with silvered metal dial, bar needle, jeweled cap, automatic stop and snap cover, with full divisions on raised circle	50 " (2 ")	26 00
		60 " (2 2-5 ")	28 00
		70 " (2 4-5 ")	34 00
No. 2715	Extra fine accurate watch case compass, nickel bunting case, jeweled needle	40 " (1 3-5 ")	32 00
		45 " (1 4-5 ")	34 00
		50 " (2 ")	36 00
		55 " (2 1-5 ")	38 00

Wood Case Compasses.

			Per Doz.
No. 2734	Wood case, with cover, card dial, plain needle, automatic stop	70 M. (2 2-5 in.)	$11 50
No. 2735	" " " " metal " jeweled " " "	70 " (2 2-5 ")	14 50
No. 2736	" " " " " " " " full divisions	70 " (2 2-5 ")	17 00
No. 2737	Wood case, with cover, metal dial, jeweled needle, automatic stop, full divisions	90 " (3 3-4 ")	35 00
No. 2738	Same as cut, with divisions on raised circle	90 " (3 3-4 ")	41 00

FINE FRENCH COMPASSES.

No. 2700.

No. 2702.

No. 2705.

No. 2707.

No.			Per Doz.
2700	Brass case, with silvered metal dial, brass cap to needle and stop	40 M. (1 3-5 in.)	$ 7 50
		45 " (1 4-5 ")	8 00
		50 " (2 ")	8 50
2702	Brass case, with silver metal dial. full divisions, agate cap and stop	40 " (1 3-5 ")	11 00
		45 " (1 4-5 ")	11 50
		50 " (2 ")	12 00
2705	Brass case, with silvered metal dial, brass cap to needle, stop and snap cover	40 " (1 3-5 ")	10 00
		45 " (1 4-5 ")	10 50
		50 " (2 ")	11 00
2707	Same as above, but with jeweled cap to needle and full divisions on dial	40 " (1 3-5 ")	14 00
		45 " (1 4-5 ")	14 50
		50 " (2 ")	15 00

Our line of compasses is complete. Guaranteed as represented. All orders filled same day received. No delay.

No. 2715.

No. 2725.

No. 2723.

No. 2734.

			Per Doz.
No. 2725	Heavy nickel-plated case, with pull-off cover, silvered metal dial, full divisions, fine quality bar needle, jeweled, automatic stop	50 M. (2 in.)	$33 00
		60 " (2 2-5 ")	36 00
		70 " (2 4-5 ")	42 00
		80 " (3 [illegible] ")	50 00
No. 2723	Heavy brass case, with double bottom, with silvered metal dial, bar needle, jeweled cap, automatic stop and snap cover, with full divisions on raised circle	50 " (2 ")	26 00
		60 " (2 2-5 ")	28 00
		70 " (2 4-5 ")	34 00
No. 2715	Extra fine accurate watch case compass, nickel bunting case, jeweled needle	40 " (1 3-5 ")	32 00
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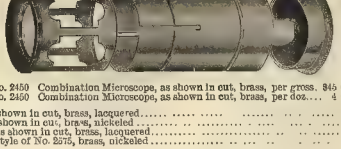
No. 2736	" " " " " " " " full divisions	70 " (2 2-5 ")	17 00
No. 2737	Wood case, with cover, metal dial, jeweled needle, automatic stop, full divisions	90 " (3 3-4 ")	35 00
No. 2738	Same as cut, with divisions on raised circle	90 " (3 3-4 ")	41 00

MAGNIFYING GLASSES.

No. 2455.



No. 2450 Combination Microscope, as shown in cut, brass, per gross. $45 00
No. 2450 Combination Microscope, as shown in cut, brass, per doz.... 4 00

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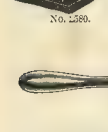
No. 2455 Seed Microscope, as shown in cut, brass, lacquered.....per doz., $5 00
No. 2456 Seed Microscope, as shown in cut, brass, nickeled..... " 2 70
No. 2575 Tripod Microscope, as shown in cut, brass, lacquered..... " 6 50
No. 2576 Tripod Microscope, style of No. 2575, brass, nickeled..... " 9 50



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LINEN PROVERS—Non-Achromatic.

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No. 2581 Nickeled Linen Prover, opening ¼x½ inch..... " 3 50
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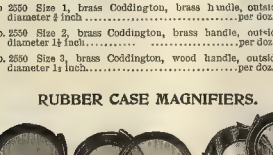
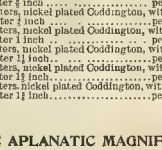


No. 2550.

BRASS CODDINGTONS.



No. 2533. 20 Millimeters.

No 2550 Size 1, brass Coddington, brass handle, outside diameter ⅝ inch.....per doz., $17 00
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No. 2550 Size 3, brass Coddington, wood handle, outside diameter 1½ inch.....per doz., 24 00

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No. 2533 30 millimeters, nickel plated Coddington, with folding cover, diameter 1¼ inch.....per doz., 33 00
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No. 662 Single lens, diameter 1¼ inch..... " 7 70
No. 668 Single lens, diameter 1½ inch..... " 9 80
No. 674 Single lens, diameter 1¾ inch..... " 12 60
No. 678 Single lens, diameter 2 inch..... " 16 80
No. 651 Two lenses, diameter ⅝ and ⅝ inch..... " 7 00
No. 657 Two lenses, diameter ⅝ and 1 inch..... " 9 80
No. 663 Two lenses, diameter 1¼ and 1¼ inch..... " 12 60
No. 669 Two lenses, diameter 1¼ and 1½ inch..... " 16 80
No. 675 Two lenses, diameter 1¼ and 1¾ inch..... " 22 40
No. 679 Two lenses, diameter 1¾ and 2 inch..... " 28 00
No. 6103 Three lenses, diameter ⅝, ⅝, ⅝ inch..... " 9 80
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THE APLANATIC MAGNIFIER.

For the Physician, the Botanist and the Scientist.

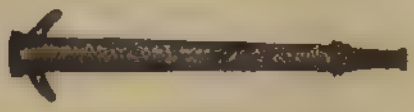
No. 2360. No. 2559

As its name implies, gives a perfectly flat field of great brilliancy and exquisite definition, entirely free from spherical or chromatic aberration.

No. 2559 Folding.....each, $1 50
No. 2560 With handle..... " 1 30

All Orders Filled Same Day Received. No Delay.

‡HOSE PLAY PIPES.

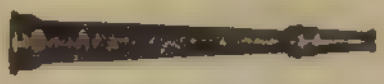


UNDERWRITER PIPE.

The Best Style of Pipe for Mill use is the UNDERWRITER—made in Conformity with the Requirements of the Associated Factory Mutual Fire Insurance Companies. It has a Seamless Copper Tube, Firmly Attached to the Mountings, is Wound with Marline and Painted Red. It has a Swivel Handle; The Word UNDERWRITER is Stamped in Black on the Red Paint, together with Name and the Date of Manufacture.

Size Outlet, inches	3/4	7/8	1	1 1/8	1 1/4
No. U—2 1/2 inch Butt, 30 inches Long, each	$12.00	12.00	12.00	12.00	12.00

Standard Outlet 1 1/8 inches.



WOUND AND PAINTED PIPE.

This Pipe is made with Seamless Brass Barrel, either Tapered or Straight, Wound with Marline and Painted Red; It has a Screw Tip, and is made either Plain or with Swivel Handles; Unless otherwise Specified, Tapered Barrels will be furnished.

PLAIN HANDLE.

Size Outlet, inches	3/4	7/8	1 1/8	1 1/4
No 202—2 inch Butt, 20 inches Long, each	$4.50	4.50	4.50	4.50
No 202 1/2—2 1/2 inch Butt, 20 inches Long, each	$6.00	6.00	6.00	6.00
No 242 1/2—2 1/2 inch Butt 24 inches Long, each	$7.00	7.00	7.00	7.00

SWIVEL HANDLE

Size Outlet, inches	3/4	7/8	1 1/8	1 1/4
No. 202/S—2 inch Butt, 20 inches Long, each	$6.50	6.50	6.50	6.50
No 202 1/2 S—2 1/2 inch Butt, 20 inches Long, each	$8.00	8.00	8.00	8.00
No 242 1/2 S—2 1/2 inch Butt, 24 inches Long, each	$10.00	10.00	10.00	10.00

SCREW TIP PIPE.

These Pipes are of Cast Brass, Heavy and Well Finished; Plain Screw Tip; The Screw Tip Pipes are adopted as a Standard for Tip Threads, a Thread which is somewhat Smaller than the 3/8 inch Pipe Thread which is usually Cut; This makes a Pipe of much Better Proportion, Stronger, and one that is Less Liable to Leak.

No. SC—SCREW TIP PIPE.

Size, inches	1x8	1 1/4x12	1 1/2x12	2x12	2 1/2x15
Per dozen	$10.00	20.00	25.00	38.00	75.00

Packed Loose.

‡Goods marked thus (‡) are not carried in stock and can only be furnished by shipment direct from factory

HOSE NOZZLES.

Boston Spray

Per Dozen

No. BS—ADJUSTABLE for Spray or Solid Stream. Polished Cast Brass. Size ¾ inch. Length 4¼ inches. Weight per dozen about 5¾ lbs. . . . $9.00

One Dozen in a Cardboard Box

Genuine Gem

Per Dozen

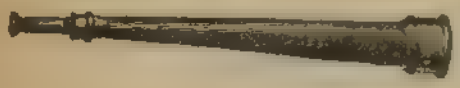
No. G—ADJUSTABLE for Spray or Solid Stream. Polished Cast Brass. Size ¾ inch. Length [illegible] inches. Weight per dozen about [illegible] lbs. $7.50

Magic Pattern Spray

Per Dozen

No. MP—ADJUSTABLE for Spray or Solid Stream. Polished Cast Brass, Detachable Screw Tip; Size ¾ inch. Length [illegible] inches. Weight per dozen about 5¼ lbs. $7.50

One-half Dozen in a Cardboard Box



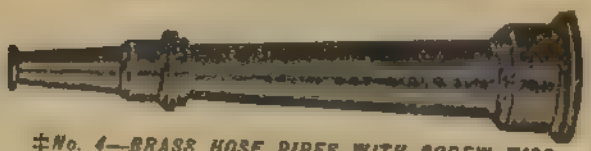
No. 10—SOLID STREAM. Polished Cast Brass; Detachable Screw Tip.

Diameter, inches	¾	1	1¼	1½	2
Length, inches	7½	8½	15	15	20
Weight per dozen about, lbs.	6	9	21	27	36
Per dozen	$8.00	10.00	24.00	30.00	50.00

Packed Loose.

‡HOSE PIPES.

To Fit No. 2 Special Grade Linen Hose.



‡No. 4—BRASS HOSE PIPES WITH SCREW TIPS.

Size, inches	¾x7½	¾x12	1x8½	1x12	1¼x12	1¼x15	1½x13	1½x15
Diameter, inches	¾	¾	1	1	1¼	1¼	1½	1½
Length, inches	7½	12	8½	12½	12	15	13	15
Weight per dozen about, lbs.	20	36	40	65	94	110	129	140
Per dozen	$6.00	9.60	7.80	10.80	13.20	14.40	15.60	18.00

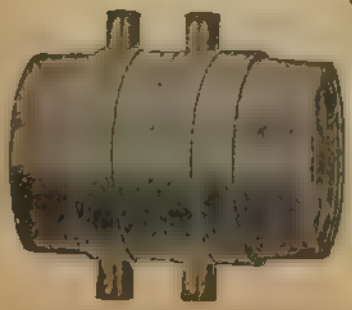
Size, inches	2x12	2x15	2x20	2½x15	2½x20	2½x24	2½x30	2½x36
Diameter, inches	2	2	2	2½	2½	2½	2½	2½
Length, inches	12	15	20	15	20	24	30	36
Weight per dozen about, lbs.	150	200	270	360	380	400	415	430
Per dozen	$22.20	26.40	30.00	40.80	54.00	66.40	79.20	86.40

Hose Pipes 3 inches in Diameter, Price Quoted on Application.

Packed Loose.

‡HOSE COUPLINGS.

Expansion Ring Hose Couplings to Fit No. 2 Special Grade Linen Hose.



‡No. 2A—AUTOMATIC EXPANSION (Except ¾ inch): RING BRASS COUPLINGS

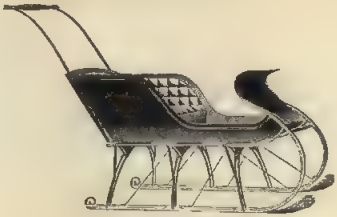
Diameter, inches	¾	1	1¼	1½	2	2½	3
Weight per Set about, lbs.	¾	1	1½	2½	3½	6	8
Per Set, Attached to Hose	$0.30	1.20	1.40	1.70	2.30	2.70	7.60

NOTE.—Difference in price of ¾ inch and 1 inch due to ¾ inch being a common brass coupling, not being made Automatic as is 1 inch and larger.

‡Goods marked thus (‡) are not carried in stock and can only be furnished by shipment direct from factory.

CHILDREN'S CUTTERS.

No. 550.



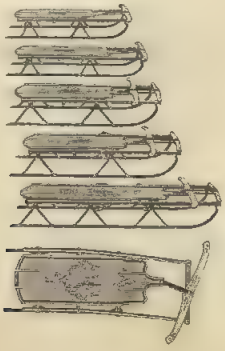
No. 585.

There is nothing within the price better than our Nos. 550 and 555 Cutters. These Cutters have a bent Dash high and wide enough to form a protection from the wind. The bodies are nicely painted in pleasing colors, and decorated and striped in a tasteful manner, as our illustration shows.

If finished in white, add 50c each.

No. **550**, Length 38 inches, width 15 inches, no upholstery, oval Shoes,	Each,	$4 50
" **555**, Same as No. 550, except Seat and Back upholstered in Damask,	"	6 00
" **575**, We have changed the shape of the bent Dash and Fenders and enlarged the size to 42x18. This model is handsomely finished, decorated and striped. Gear made entirely of second growth Hardwood, with three bent Knees, six tinned Knee Braces and oval Shoes. Painted in light and dark colors. Seat only upholstered,	"	6 60
" **580**, Seat and Back upholstered in Damask,	"	9 00
" **585**. Upholstered in Silk Plush. Same as No. 580, except it has six Runner Braces, same as cut,	"	11 00

Packed one in a crate.



FLEXIBLE FLYER SLEDS.

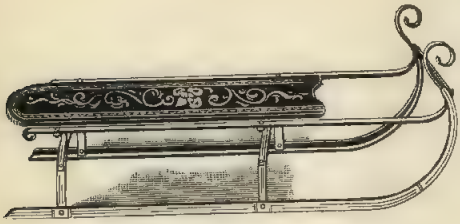
No. **1**,	Length	36 in.,	Height	6 in.,	Width	12 in.,	Weight	8	pounds,	Each,	$2 50
" **2**,	"	40 "	"	6¼ "	"	13 "	"	9¾	"	"	3 00
" **3**,	"	45 "	"	8½ "	"	14 "	"	13½	"	"	3 75
" **4**,	"	50 "	"	8⅛ "	"	16 "	"	16¾	"	"	4 50
" **5**,	"	62 "	"	8½ "	"	16 "	"	22	"	"	6 00
" **6**,	"	101 "	"	8¾ "	"	16 "	"	41	"	"	10 00

No. 1 carries one child of medium size.

No. 2 carries one grown person or two children.

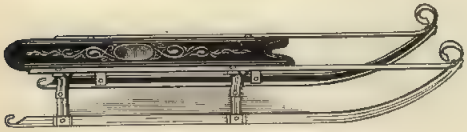
No. 3 carries two large children and is amply strong for two adults.

ANGLE STEEL SLEDS.

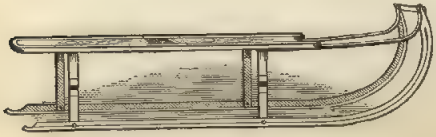


No. 1, Swan neck fenders so popular with the girls. The runners are cut away from the fenders and taper to full size. The gear is painted a light chrome yellow with extra finish. The top boards are double colored with fancy striping, beautiful landscapes and scroll work; handsomely finished; equipped with anti-friction runners and one-piece bench. Length 32 inches, width 12 inches, height 6½ inches, weight 8 pounds, Per dozen, $24 00

No. 2, A popular priced sled that will last a life time. Finished in light green or bright red. Length 32 inches, width 12 inches, height 6½ inches, weight 8 pounds, Per dozen, $18 00



No 3, A big seller, made to meet a popular demand at popular price. Handsomely finished in brilliant colors. Equipped with anti-friction runners and one piece bench. Length 36 inches, width 12 inches, height 5 inches, weight 7 pounds, Per dozen, $18 00



No. 6, The best steel sled for the money on the market. Plain angle steel runners and plain benches. Neatly painted and decorated. Length 29½ inches, width 10 inches, height 6 inches, weight 7 pounds, Per dozen, $13 00.

MORLEY-MURPHY HARDWARE COMPANY, GREEN BAY, WIS.

TOYS—Continued

SLEDS—Continued

No. 166 Hardwood coaster, painted and decorated, long upward curved runners, 4 hand holes round spring shoes, length 42 inches. Per doz. $21 60

No. 167 Runners are polished maple highly finished, top painted in 2 colors with decorations of landscape and flowers, runners braced with 4 angle irons, and points of shoes are scrolled and tinned, 4 hand holes, round spring shoes, length 42 inches . Per doz. $27 00

FLEXIBLE FLYERS

"The Sled that Steers"

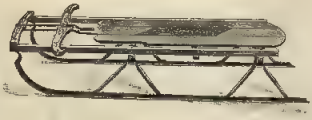
Have spring steel flexible runners controlled by steering bar, convenient for hand or feet. Runners are all [illegible] shape, spring steel, very strong and rigid vertically but free to bend sidewise. Run easy and fast down hill, straight grain hardwood frame, painted in bright colors.

No. 119 Carries 1 child of medium size length 36 inches . . . . Per doz. $45 60

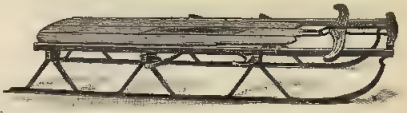
No. 122 Designed especially to carry 2 grown persons, length 50 inches . . Per doz. $83 40

No. 120 Carries 1 grown person or 2 children, length 40 inches . Per doz. $55 00

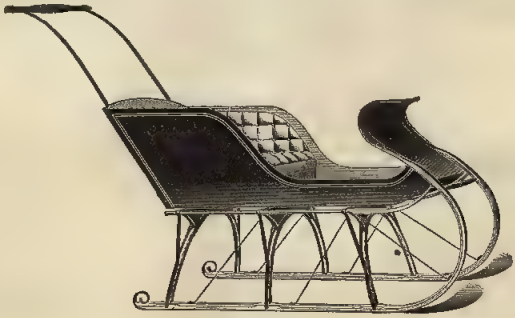
No. 124 Racer, especially made for fast work, built light and narrow, with runners extending well forward and to the rear length 56 inches Per doz. 82 40



No. 121 Carries 2 large children or is amply strong for 2 adults, length 45 inches Per doz. $70 00



No. 123 Carries 3 grown persons or 4 or 5 children, length 62 inches... .... Per doz. $115 00



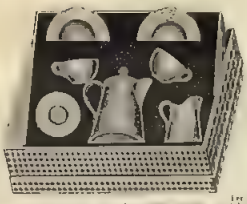
Nos. 168 and 169

No. 168 Cutter, bent dashboard, body painted in attractive colors, painted wood seat, oval shoes, length 38 inches .... Per doz. $54 00

No. 169 Cutter, bent dashboard, gear made of second growth hardwood, 3 bent knees, 6 tin knee braces, oval shoes, seat and back upholstered in damask, length 42 inches . . . Per doz. $114 00

TOYS—Continued

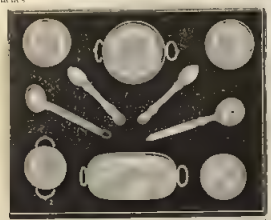
TOY TEA SETS



No. Per set
86288 Coffee set, gray enamel, [illegible] pieces, sewed on a card, each set in a box, size [illegible] inches $4 24
86289 Consisting of coffee pot and cover, sugar and cream, 4 cups and saucers, gray enamel, each set in box, size 8 [illegible] inches 8 00

No. Per set
86292 Decorated tin coffee set, consisting of coffee pot with cover, sugar bowl, cream pitcher, each set in a partition box, size 7x9½ inches $1 60
86293 Decorated tin coffee set, consisting of coffee pot with cover, and 4 cups and saucers, each set in a partition box, size 10x8 inches 4 00
86294 Decorated tin tea set, [illegible] consisting of coffee pot with cover, sugar and cream, 4 cups and saucers, each set in a partition box, size 12x10 inches 4 50

Per doz.
86387 7 pieces of [illegible] sugar and cream [illegible] decorated and set in finish height of teapot 2 [illegible] inches, box 7x11, each box $4 00



No. Per set
86280 Kitchen set, consisting of 7 pieces of metal enameled kitchen utensils, sewed on a card, each card in a box, size [illegible] inches $4 50
86281 [illegible] set [illegible] No. 86280 but larger, having [illegible] 8 50
86282 [illegible] consisting of 9 pieces of [illegible] kitchen utensils sewed on cards, each card [illegible] 10½x8½ inches 14 00
86283 Same as No. 86280 set consisting of 15 [illegible] 13½x10½ inches 24 00

Per doz.
86039 China set with floral spray and tinting, gold bronze [illegible] sugar and cream, set consisting of 6 cups and saucers, covered tea pot, covered sugar bowl and cream pitcher, and 6 spoons, box, size 7¾x11x1½ inches [illegible] $4 00
86041 China tea set consisting of large pieces, 2 cups and saucers, tea pot, [illegible] 5 00
86042 China tea set consisting of large pieces, 2 cups and saucers, tea pot, [illegible] sugar bowl and cream pitcher, [illegible] 8 00

No. Per doz.
86300 4 pieces, sugar bowl cream pitcher, spoon holder, and covered butter dish, imitation cut glass, average height 2½ inches $3 00

86284 Enameled set, consisting of 5 pieces [illegible] kitchen utensils, sewed on card, each card in a box, size [illegible] inches $4 24
86285 Same as No. 86284 set, but [illegible] 7 large pieces, box [illegible] inches 8 00
86286 Enameled set consisting of 11 pieces of large kitchen utensils sewed on card, box, size 11½x10 inches 16 00
86287 Same as No. 86285, but larger, [illegible] 21 pieces in a box, size 16x11 inches 24 00
86290 Enameled coffee set, consisting of coffee pot and cover, sugar, cream, 4 cups and saucers of blue enamel, each set in a partition box, size 13x10 inches 24 00

Per doz.
86388 7 piece set, including 2 cups and saucers, sugar and cream and teapot decorated in red satin finish height of teapot 4 inches, box 7x11½ inches $8 00

No. Per doz.
86037 China tea set, each decorated with [illegible] 6 cups and saucers, covered tea pot, covered sugar bowl and cream pitcher, box size 9¾x8¾x7½ inches $3 00
86038 [illegible] set consisting of 6 cups and saucers, covered tea pot, covered sugar bowl and cream pitcher, box size 11¾x7¾x1½ inches 4 00

No. Per set
86291 [illegible] sugar and cream, 3 cups and saucers, [illegible] with celluloid Scotch plaid border, each [illegible] box size 12x10 inches $24 00

No. Per doz.
86040 Child's set, consisting of 6 cups and saucers, covered tea pot, covered sugar bowl and cream pitcher, assorted floral sprays, maroon line on edge, box size 10¾x7¾x1¾ inches $5 00

No. Per set
83389 17-piece set including 6 [illegible] sugar and creamer, teapot and 2 fruit dishes [illegible] finish, height of [illegible] box 7x11 [illegible] $3 00

COASTERS.

FLEXIBLE FLYERS.

Each

No. 3. **Flexible Flyers,** length 44 in., height 7 in., width 14 in., weight 18 lbs..... $3.75

Each

No. 4. **Flexible Flyers, with foot rests,** length 50 in., height 8 in., width 16 in., weight 16 lbs..... $4.50

Each

No. 5. **Flexible Flyers, with foot rests,** length 62 in., height 8 in., width 16 in., weight 21 lbs..... $6 00

BABY WALKERS AND ROCKERS.

GLASSCOCK'S BABY WALKER.

GLASSCOCK'S COMBINED BABY JUMPER AND ROCKING CHAIR.

Each

Glasscock's Combined Baby Walker and Tender..... $3.00

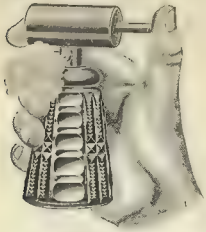
No. 1. **Baby Jumpers,** oak finish, black enamel trimmings..... 4.00

No. 2. **Baby Jumpers,** antique oak, nickel trimmings..... 4.50

AUTOMATIC PUMP ATOMIZERS

THEY ARE NEW, WELL MADE, EASY TO OPERATE.
Simple in construction. Work exceedingly well.
Have no valves to get out of order.
No mysteries. No complications. Warranted to last a [illegible]
No [illegible] of the perfume. No waste.

THESE PERFUMIZERS HAVE NO VALVES.
Clean themselves by the air passing back through nose and tubing in each operation.
Made of [illegible]. Finished in nickel, silver and gold plate tops.
Plunger is made of heavy, soft leather.



FLINT BEADED GLASS

No. 9000	Nickel plated	$1 25
No. 9001	Silver plated	1 75
No. 9002	Gold plated	2 00

FLINT BEADED GLASS

No. 9003	Nickel plated	$1 25
No. 9004	Silver plated	1 75
No. 9005	Gold plated	2 00

FLINT BEADED GLASS

No. 9006	Nickel plated	$1 25
No. 9007	Silver plated	1 75
No. 9008	Gold plated	2 00

IMPORTED CUT GLASS

No. 9009	Nickel plated	$2 50
No. 9010	Silver plated	3 00
No. 9011	Gold plated	3 50

IMPORTED CUT GLASS

No. 9012	Nickel plated	$3 00
No. 9013	Silver plated	3 50
No. 9014	Gold plated	4 00

IMPORTED CUT GLASS

No. 9015	Nickel plated	$2 00
No. 9016	Silver plated	2 25
No. 9017	Gold plated	2 50

FLINT GLASS

No. 9018	Nickel plated	$1 50
No. 9019	Silver plated	2 00
No. 9020	Gold plated	2 50

FINE AMERICAN CUT GLASS

No. 9021	Nickel plated	$3 50
No. 9022	Silver plated	4 00
No. 9023	Gold plated	5 00

COLORED TIFFANY GLASS

No. 9024	Nickel plated	$1 25
No. 9025	Silver plated	1 75
No. 9026	Gold plated	2 00

IMPORTED CUT GLASS

No. 9027	Nickel plated	$3 50
No. 9028	Silver plated	4 00
No. 9029	Gold plated	5 00

IMPORTED CUT GLASS

No. 9030	Nickel plated	$3 00
No. 9031	Silver plated	3 50
No. 9032	Gold plated	4 00

ENGRAVED CUT GLASS

No. 9033	Nickel plated	$3 00
No. 9034	Silver plated	3 50
No. 9035	Gold plated	4 00

ENGRAVED CUT GLASS

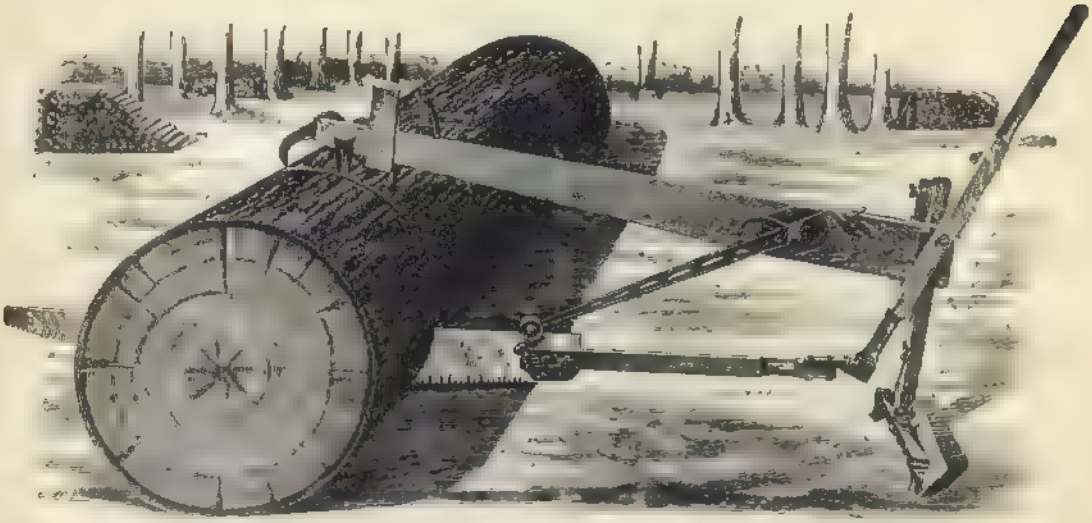
No. 9036	Nickel plated	$2 00

IMPORTED CUT GLASS

No. 9037	Nickel plated	$2 00
No. 9038	Silver plated	2 25
No. 9039	Gold plated	2 50

H. Channon Company. Chicago.

THE FOLDING SAWING MACHINE



This machine is made in two sizes—No. 1, weight 42 lbs.; No. 2, 45 lbs. One man can carry either size on his shoulder with perfect ease.

With either machine one man can alone saw down trees, cutting them anywhere from 1½ to 27 inches from the ground and after cutting down he can saw into any desired length. These machines will cut any kind of timber on level or uneven ground, always cutting the log squared off.

The two sizes are exactly alike, differing only in size and are strong and well made in every respect.

Quickly Changed. Any one, after becoming accustomed to the working of the machine, can unfold it, set it up for sawing down a tree, change it to saw a standing log, or set it for work on the side of a hill and fold it up again ready to be carried to another place in about one or two minutes.

Saws. A very good well extra thin back and can be furnished with 3 styles of teeth—Champion tooth, which is good for all around work and will saw any kind of timber; Diamond tooth, which is especially adapted to hard wood, and Lance tooth, adapted for hard woods and pitch pine as it is gummed very deep.

Handles are made of straight pure white ash without knots. The springs are of the best crucible steel. The castings of malleable iron and will not break.

Shipping weights: No. 1, 50 lbs., No. 2, 55 lbs.

Size Machine to Buy

If the trees to be cut are from [illegible] inches to 30 inches in diameter, you should buy a No. 1 machine as it works perfectly in any timber from 4 feet to the smallest. If the trees are mostly larger than 30 inches you should order a No. 2 machine as it works perfectly in any size timber from 5½ feet down to the smallest.

Folded Ready to Carry

Net Price List

1	No. 1	machine	complete,	with 5½-foot saw and complete set of filing tools			$17.50
1	No. 1	machine	complete,	with 5½-foot saw			16.00
	No. 1	"	"	" 6	"	"	16.50
1	No. 1	"	"	" 6½	"	"	17.00
1	No. 2	"	"	" 5½	"	"	19.00
1	No. 2	"	"	" 6	"	"	19.50
1	No. 2			" 6½	"	"	21.00
1	No. 2			" 7			22.00

SAW BLADES

We carry in stock the Diamond, Champion and Lance-tooth saw blades, and will send with your machines any kind you order, or if you will tell us what size of saw you have we will send the kind of saw best adapted to same.

5½-foot saw blade with Diamond Champion or Lance teeth, $4.50

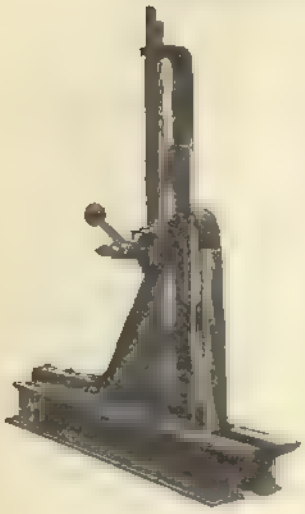
6-foot saw blade, with Diamond Champion or Lance teeth, 5.00

6½-foot saw blade, with Diamond, Champion or Lance teeth, [illegible]

7-foot saw blade, with Diamond Champion or Lance teeth, 6.00

Arranged to Saw 5 Inches from the Ground

KNIGHT'S NEW "IDEAL" SAW MILL DOGS



Ideal Single Dog

Knight's Ideal Single Mill Dogs are too well known among mill men to require a detailed description of their operation. We wish, however, to call your attention to the improved locking mechanism, controlled by the power lever which automatically locks the dog bit at [illegible] forced into the timber.

The Knight's Ideal Duplex Dog differs from the single dog in that [illegible] dogs the log from above and below. The lower dog, which is located between the g[illegible] entirely automatic in its action, no adjustment being necessary to bring it into proper position to hold either log or cant. It is controlled by the power lever and, requiring n[illegible] movement to operate it, can [illegible] dled with the same speed as th[illegible] dog, making it the best general pur[illegible] dog on the market.

Ideal Duplex Dog

KNIGHT'S SPECIAL QUARTER DOG

The [illegible] is designed specially for quarter sawing, but as the [illegible] log is operated independently may also [illegible] single dog

Standard Size	Height Inches	Standard Size Weight Each Lbs.	Standard Size Price per Pair	Extra Long Weight Each, Lbs.	Extra Long Price per Pair
No. [illegible]	[illegible]	[illegible]	[illegible]	No[illegible]	[illegible]
No. [illegible]	[illegible]	[illegible]	[illegible]	130	[illegible]
No. [illegible]	[illegible]	[illegible]	[illegible]	150	55 00
No. [illegible] Special	[illegible]	[illegible]	[illegible]	150	85 00
No. [illegible]	[illegible]	145	85 00	245	125 00
Special Quarter Dog					
[illegible]	[illegible]			[illegible]	7[illegible]

Directions for Ordering

To avoid delay and insure filling orders correctly, the following information should be given

Size number, single or [illegible] right or left hand. The h[illegible] be determined as follows [illegible] right hand mills a right-hand dog [illegible] on the front block and a left [illegible] the rear or intermediate bloc[illegible] left hand mi[illegible] on the front bloc[illegible] the rear or inter[illegible]

THE "AMERICAN" GIANT DUPLEX MILL DOG

Strong, Quick, Simple and Effective

The Main Frame is one piece which is bolted to the head block knee.

The Slide Bar is secured to the main frame, has an up-and-down [illegible] ment and carries the t[illegible] t, and is moved by operating lever.

The Top Dog Socket is adjustable to any de[illegible] position on the slide bar and carries the dog bit [illegible] out.

The [illegible] is secured to a large [illegible] head screw and [illegible] point the sliding socket [illegible] by one mot[illegible]

[illegible] lower Dog [illegible] by the [illegible] and [illegible] lever. [illegible]

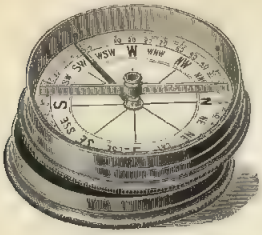
If [illegible] is fastened to the main slide bar and the [illegible] the lever [illegible] cam in the main frame. One motion of [illegible]

In [illegible] is lowered until the bit touches the log and is fastened to the [illegible] by pressing down the operating lever the dog is forced into the timber [illegible] dog [illegible] lower bit [illegible]

[illegible] and is easily attached by simply [illegible] of the head block knee. Made in two sizes suitable for any size mill.

No. 1. Weight, 70 lbs. Price each . $12.00 No. 2. Weight, 80 lbs. Price each $15.00

COMPASSES.



No. 44, Nickel Plated.

Nos. 22 and 33.

WATERPROOF CASE.

No. **44**, 3 inch Face, Slip Cover, Bar Needle, Jewel Cap, Automatic Stop, Full Circle Division, Metal Dial, Each $6 00
" **22**, 45 M. M., 1¾ inch Face, Brass Case, Bar Needle, Jeweled Cap, Automatic Stop Full Circle Division, Metal Dial, " 2 00
" **22**, 50 M. M., 2-inch Face, Brass Case, Bar Needle, Jeweled Cap, Automatic Stop, Full Circle Division, Metal Dial, " 2 30
" **22**, 60 M. M., 2¼-inch Face, Brass Case, Bar Needle, Jeweled Cap, Automatic Stop, Full Circle Division, Metal Dial, " 2 60
" **33**, 50 M. M., 2 inch Face, Nickel Plated Case, Bar Needle, Jeweled Cap, Automatic Stop, Full Circle Division, Metal Dial, " 3 00
" **33**, 60 M. M., 2½ inch Face, Nickel Plated Case, Bar Needle, Jeweled Cap, Automatic Stop, Full Circle Division, Metal Dial, " 3 20

No. 55

No. **55**, Flat, Brass, Waterproof Case, Metal Dial, Slip Cover, Automatic Stop, Jeweled, best English Bar Needle, Raised Full Circle Division; Cover to fit bottom.

No. **55**, 50 M. M., 2 inch Face, Each, $3 00
" **55**, 60 " 2½ " " " 3 50

We specially recommend this Compass to land-lookers and hunters.

No. 57.

No. 66

NICKEL PLATED, WATCH FORM, HUNTING CASE.

No. **57**, 45 M. M., 1¾-inch Face, Bar Needle, Jeweled Cap, Automatic Stop, Full Circle Division, Metal Dial, Each, $4 50
" **57**. 50 " 2 " " " " " " " " " " " " 5 50

BRASS CASE, HINGE COVER.

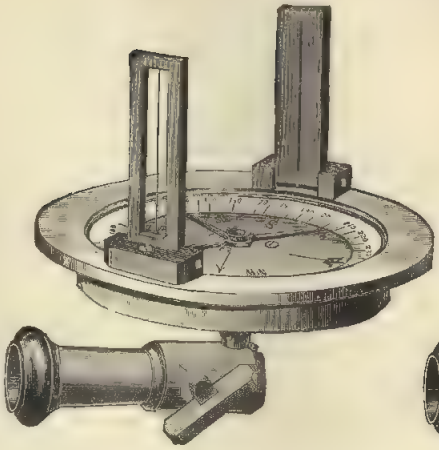
No. **66**. 40 M. M., 1½-inch Face, Common Needle, Agate Cap, Slide Stop, Full Circle Division, Metal Dial, Each, $1 80
" **66**. 50 " 2 " " " " " " " " " " " " " " 2 20
" **66**, 60 " 2½ " " " " " " " " " " " " " " 2 40

MORLEY-MURPHY HARDWARE COMPANY, GREEN BAY, WIS.

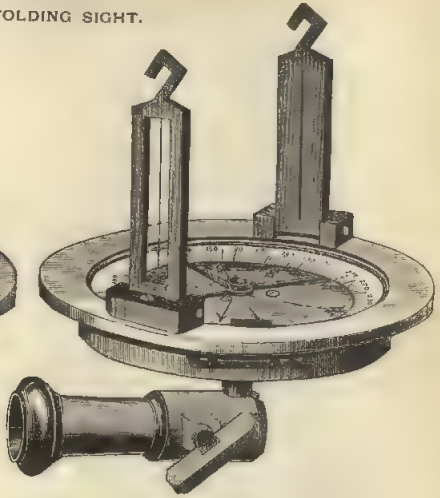
MORLEY-MURPHY HARDWARE COMPANY, GREEN BAY, WIS.

COMPASSES.

SURVEYOR'S FOLDING SIGHT.



No. 3.



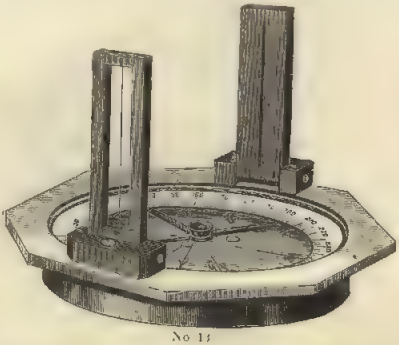
No. 7, with Levels.

Universal Ball Sockets, for Jacob's Staff, Brass Case.

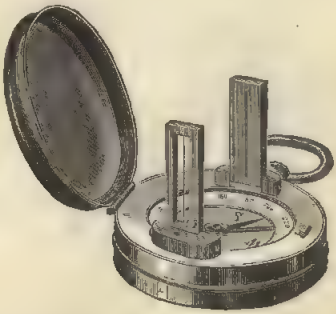
No. 3, 80 M. M., 3-inch Face, Metal Dial, Jeweled Cap, Slide Stop, Raised and Full Circle Division, Bar Needle, in Plush Lined Leather Case, - - - - - - - - - - Each, $12 00

" 7, 90 M. M., 3½ inch Face (with two Levels), Metal Dial, Jeweled Cap, Slide Stop, Raised and Full Circle Division, Bar Needle, in Plush Lined Leather Case, - - - - - - - - - " 16 00

" 7, 110 M. M., 4¼ inch Face, otherwise the same as No. 7, 90 M. M., - - - - - - - - " 18 00



No 14



No. 18.

No. 18, 50 M. M., 2 inch Face, Hinge Cover, Metal Dial, Jeweled Cap, Slide Stop, Raised and Full Circle Division, Each, $7 00

" 18, 70 " 2¾ " " " " " " " " " " " " " " " " " 8 00

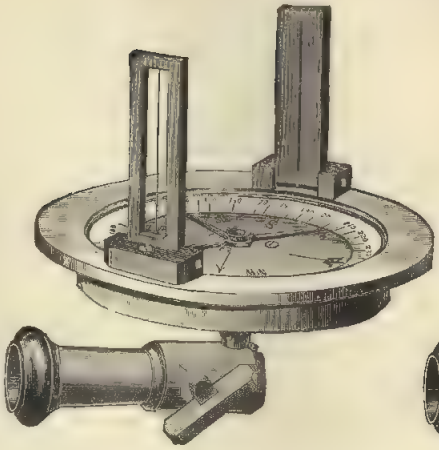
" 13, 70 " 2¾ " " Metal Dial, Jeweled Cap, Raised and Full Circle Division, in Plush Lined Leather Case, " 8 00

" 18, 80 " 3⅛ " " " " " " " " " " " " " " " " " 9 00

MORLEY-MURPHY HARDWARE COMPANY, GREEN BAY, WIS.

COMPASSES.

SURVEYOR'S FOLDING SIGHT.



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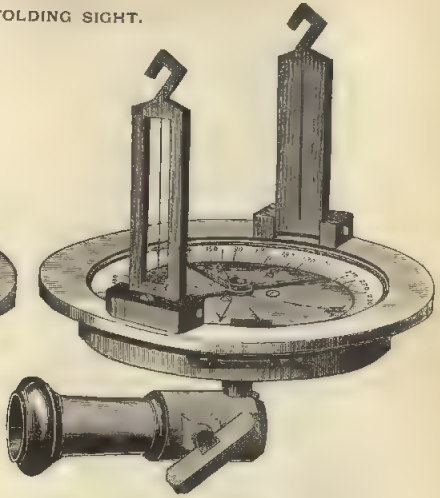


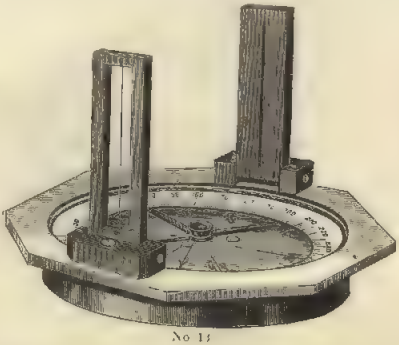
No. 7, with Levels.

Universal Ball Sockets, for Jacob's Staff, Brass Case.

No. 3, 80 M. M., 3-inch Face, Metal Dial, Jeweled Cap, Slide Stop, Raised and Full Circle Division, Bar Needle, in Plush Lined Leather Case, - - - - - - - - - - Each, $12 00

" 7, 90 M. M., 3½ inch Face (with two Levels), Metal Dial, Jeweled Cap, Slide Stop, Raised and Full Circle Division, Bar Needle, in Plush Lined Leather Case, - - - - - - - - - " 16 00

" 7, 110 M. M., 4¼ inch Face, otherwise the same as No. 7, 90 M. M., - - - - - - - - " 18 00



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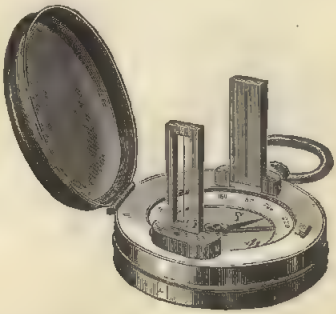

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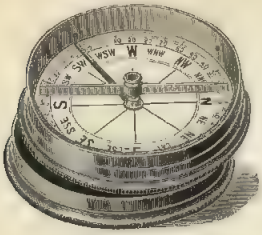
" 13, 70 " 2¾ " " Metal Dial, Jeweled Cap, Raised and Full Circle Division, in Plush Lined Leather Case, " 8 00

" 18, 80 " 3⅛ " " " " " " " " " " " " " " " " " 9 00

COMPASSES.



No. 44, Nickel Plated.

Nos. 22 and 33.

WATERPROOF CASE.

No. **44**, 3 inch Face, Slip Cover, Bar Needle, Jewel Cap, Automatic Stop, Full Circle Division, Metal Dial, Each $6 00
" **22**, 45 M. M., 1¾ inch Face, Brass Case, Bar Needle, Jeweled Cap, Automatic Stop Full Circle Division, Metal Dial, " 2 00
" **22**, 50 M. M., 2-inch Face, Brass Case, Bar Needle, Jeweled Cap, Automatic Stop, Full Circle Division, Metal Dial, " 2 30
" **22**, 60 M. M., 2¼-inch Face, Brass Case, Bar Needle, Jeweled Cap, Automatic Stop, Full Circle Division, Metal Dial, " 2 60
" **33**, 50 M. M., 2 inch Face, Nickel Plated Case, Bar Needle, Jeweled Cap, Automatic Stop, Full Circle Division, Metal Dial, " 3 00
" **33**, 60 M. M., 2½ inch Face, Nickel Plated Case, Bar Needle, Jeweled Cap, Automatic Stop, Full Circle Division, Metal Dial, " 3 20

No. 55

No. **55**, Flat, Brass, Waterproof Case, Metal Dial, Slip Cover, Automatic Stop, Jeweled, best English Bar Needle, Raised Full Circle Division; Cover to fit bottom.

No. **55**, 50 M. M., 2 inch Face, Each, $3 00
" **55**, 60 " 2½ " " " 3 50

We specially recommend this Compass to land-lookers and hunters.

No. 57.

No. 66

NICKEL PLATED, WATCH FORM, HUNTING CASE.

No. **57**, 45 M. M., 1¾-inch Face, Bar Needle, Jeweled Cap, Automatic Stop, Full Circle Division, Metal Dial, Each, $4 50
" **57**. 50 " 2 " " " " " " " " " " " " 5 50

BRASS CASE, HINGE COVER.

No. **66**. 40 M. M., 1½-inch Face, Common Needle, Agate Cap, Slide Stop, Full Circle Division, Metal Dial, Each, $1 80
" **66**. 50 " 2 " " " " " " " " " " " " " " 2 20
" **66**, 60 " 2½ " " " " " " " " " " " " " " 2 40

MORLEY-MURPHY HARDWARE COMPANY, GREEN BAY, WIS.

SPRING BALANCES.

Nos. 10, 11, 12.

Nos. 16, 19.

No. 25.

Nos. 50, 100, 150.

Light Straight, With Hook and Ring.

		Per dozen
No. 10.	Weighs 25 lbs. by ½ lb., Japanned, with Brass Front	$1.50
No. 11.	Weighs 25 lbs. by ½ lb., Japanned, with Brass Front	1.60
No. 12.	Weighs 50 lbs. by 1 lb., Japanned, with Brass Front	3.00

No. 10, one dozen; balance, half dozen in a box.

Heavy Straight, With Hook and Ring.

		Per dozen
No. 16.	Weighs 25 lbs. by ½ lb Japanned, with Brass Front	$4.00
No. 19.	Weighs 50 lbs. by 1 lb , Japanned, with Brass Front	8.00

Half dozen in a box.

Round, With Hook and Ring.

		Per dozen
No. 25.	Weighs 25 lbs. by ½ lb. Japanned, with Brass Plate	$4.00

Half dozen in a box.

Pelouze Straight, Extra Heavy, With Hook and Ring.

		Per dozen
No. 50.	Weighs 50 lbs by ½ lb., Japanned Spring, Brass Plate	$ 8.00
No. 100.	Weighs 100 lbs. by 1 lb., Japanned Spring, Brass Plate	24.00
No. 150.	Weighs 150 lbs. by 1 lb., Japanned Spring, Brass Plate	30.00

Half dozen in a box

DOLLS—Continued

Full jointed Dressed Dolls with bisque turning heads, glass moving eyes, flowing hair, side curls, removable shoes and stockings continued. Measurements do not include hat. Each in box

No. 1530

No. 1532

No. 1534

No. 1536

No. — Per doz.

1530 Velvet dress with figured gulmp and sleeves with velvet cuffs, velvet blouse trimmed with silk cord and metal buttons, beautiful ribbon sash, lace-trimmed hat with flowers and ribbon rosette, side part hair, height 18½ inches **$24 00**

1532 Flowered organdie baby dress, revers and sleeves, yoke trimmed with lace, baby ribbon, and rosettes, colored mull baby hat trimmed with lace, ribbon rosettes, and flowers, side-part hair, height 16½ inches **24 00**

1534 Winter girl with flannel coat and cape, cape hanging in long streamers to bottom of coat and trimmed with plush edging, velvet collar, two satin buttons, flannel mushroom hat with colored veil, height 15½ inches **$24 00**

1536 Pink and blue mull baby dress with tucks all over skirt, white gimp and sleeves, revers trimmed with lace, beautiful large silk figured ribbon bow, stylish straw hat tied with large mull bow and trimmed with flowers, side-part hair, height 16 inches **25 20**

No. 1538

No. 1540

No. — Per doz.

1538 Satin dress with two box plaits, each trimmed with three satin buttons white gimp and sleeves, ribbon sash with metal buckle, satin collar trimmed with white corded braid, stylish animette hat trimmed with large white silk ribbon bow, corded braid and white plume, side-part hair height 17½ inches **$25 20**

1540 Beautiful figured organdie baby dress with lace insertion, tucks, and lace flounce, broad lace collar, large plaited baby hat with large chiffon bows and likewise tied, large white plume and ribbon bow in hair, height 16½ inches **25 20**

No. 1548

No. 1550

No. 1562

No. 1566

No. — Per doz.

1548 Colored blouse dress with pongee colored coat trimmed with white braid and metal buttons, large colored hat trimmed with buds, veil, side-part hair, height 17½ inches . . . **$30 00**

1550 Flowered organdie dress with sleeves, satin revers trimmed with silk corded braid and striped ribbon rosettes, lace collar, beautiful large colored baby hat trimmed with lace, striped ribbon rosettes and flowers, side-part hair, height 17½ inches **32 00**

1562 White accordion-plaited underskirt with mulmes overdress with four lace medallions, baby collar trimmed with lace medallions, fine net and silk ribbon ruchings, skirt and sleeves also trimmed with silk ribbon ruchings, silk baby hat trimmed with silk ribbon ruching and flowers, full curly side-part hair with ribbon bow, and natural eye lashes, height 17 inches **$33 00**

1566 Pretty lace overdress with lace suspenders and sleeves, all trimmed with silk ribbon ruching, two ribbon rosettes hanging in streamers, and flowers, straw hat trimmed with lace and flowers, full curls with side part, natural eye lashes height 18 inches **34 00**

No. 1583

No. — Per doz.

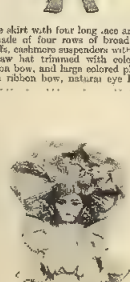
1583 Cashmere skirt with four long lace and corded medallions, blouse made of four rows of broad lace, large lace sleeves with cuffs, cashmere suspenders with flowered medallions, large straw hat trimmed with colored chiffon tied with large chiffon bow, and large colored plume on hat, full curly hair with ribbon bow, natural eye lashes, height 23 inches **$90 00**

No. 1610

No. — Per doz.

1584 Fine silk dress with broad front, trimmed with scallops, corded braid, and four medallions with satin buttons, white Swiss blouse with large lace-trimmed sleeves, silk ribbon sash tied in large bow with metal buckle, short mitts tied with ribbon bows, large silk picture hat trimmed with scallops, braid, silk ribbon, and plumes, full sweed curly wig with side part and ribbon bow, natural eye lashes, extra fine underwear, and extra fine quality full jointed body, height 26½ inches **$120 00**

1610 Fine silk dress with silk flounce, white China silk dotted blouse with silk jacket trimmed with silk cord braid and lace, belt to match, white China silk dotted sleeves trimmed with silk corded braid, white silk ribbon tie, straw hat with silk plaited facing, trimmed with lace, side part hair, real eyelashes, height 29½ inches **168 00**



No. 1584

DOLLS -Continued

Full jointed dressed dolls with bisque turning heads, moving eyes, flowing hair, side curls, removable shoes and stockings Measurements do not include hat. Each in box

No 1482

No 1484

No. Per doz.
1482 Cotton print dress with colored duck cross trimmed with colored satinette, scalloped ruching, lace medallions, and satin buttons, large sleeves with colored edging large plaited picture hat trimmed with colored satin, scalloped ruching and large colored plume, side-part hair, height 15 inches . . . **$16 00**

1484 Flowered and white striped organdie dress with lace insertion, collar trimmed with silk ruching, large sleeves with cuffs, beautiful colored baby hat trimmed with fine large chiffon ribbon bows and tie, height 15 inches **16 00**

No 1486

No 1488

No. Per doz.
1486 Dotted swiss overdress trimmed with lace and baby ribbon beading, colored baby hat trimmed with net bows and flowers, side-part hair, height 14½ inches **$16 00**

1488 Satin box-plaited dress richly trimmed with two rows of lace and metal buttons, white ribbon sash hanging in streamers, lace revers, yoke and sleeves trimmed with striped ribbon rosettes, colored satinette baby hat trimmed with lace and netting and tied with large net bow, height 15 inches **16 00**

No 1490

No 1492

No. Per doz.
1490 White flannel winter dress and jacket, jacket with white satin facing trimmed with white cord, white gauze house, pretty winter hat trimmed with white cord, ribbon rosette, and flowers, side-part hair, height 15½ inches **$16 00**

1492 Mercerized blouse dress and collar, both with lace insertion, collar trimmed with broad lace, colored gauze hat trimmed with large chiffon bow, height 14½ inches, **16 00**

No 1500

No 1502

No. Per doz.
1500 White dotted swiss overdress with lace insertion and two rows of ribbon on bottom of dress, beautiful double collar trimmed with baby ribbon, lace beading with baby ribbon pulled through, large silk bow, pretty baby hat trimmed with lace and colored ribbon and flowers, height 15½ inches **$18 00**

1502 Satin dress with white plaited blouse, satin revers and suspenders trimmed with white cord and striped ribbon with two rosettes, large lace trimmed sleeves, satin plaited picture hat trimmed with ribbon rosette and large white plume, side-part hair, height 15½ inches . **18 00**

No 1504

No 1506

No. Per doz.
1504 Satin dress with white gump and sleeves, silk ribbon tie and sash, white collar trimmed with broad lace and cord trimming, with two satin buttons, beautiful straw hat trimmed with fine silk ribbon bow and metal buckle and colored plume, side-part hair, height 15½ inches **$18 00**

1506 White mull overdress with double accordion-plaited flounce, colored sash, lace collar with pretty ribbon rosette hanging in streamers, pretty white baby hat trimmed with lace and ribbon rosette, height 15½ inches . . . **18 00**

No. 1512

No. 1516

No. Per doz.
1512 Beautiful box-plaited velvet dress and revers with white satin sash trimmed with corded braid, plaited yoke. Peter Pan velvet hat trimmed with white braid, ribbon bow and large plume side-part hair, height 15½ inches. . . **$18 00**

1516 White imitation crepe dress with lace flounce, imitation silk jacket with large collar trimmed with lace medallions, jackets assorted in red, pink, blue, and black, with picture hat trimmed with silk bow and plume to match, side-part hair, height 16 inches . . . **18 00**

No 1518

No. 1510

Per doz.
1518 Colored mull suspender dress richly trimmed with lace and braid, striped ribbon sash tied in large bow, stylish mull baby hat trimmed with flowers to match, height 15 inches **$18 00**

1510 Flannel baby winter dress with flannel revers and sleeves trimmed with lace and cord, spangles on yoke, swansdown bow on one silk, muff trimmed with swansdown, baby cap trimmed with ribbon and flowers, height 15½ inches **18 50**

1508 White overdress with net insertion large satin collar with beautiful hand-stitched medallion, collar trimmed with silk edging net insertion and white beading, straw hat with colored facing trimmed with lace, ribbon bow, and flowers, height 15 inches **19 00**

1526 Satin dress with broad satin front piece trimmed with satin buttons and white and gilt corded braid, satin revers likewise trimmed, white blouse and sleeves trimmed with lace, large ribbon bow with metal buckle, colored picture hat trimmed with net bows and flowers, side-part hair, height 16½ inches **24 00**

No 1508

No 1526

Twin Cylinder Indians and 1908 Indian Features

Anticipating some time ago the probability of a big demand for two-cylinder motorcycles, Hendee Mfg. Co., of Springfield, Mass., makers of the well-known Indian machines, as early as 1904 began designing and testing out twin-cylinder Indians and are therefore well equipt to meet the big demand that has developed this season. The Hendee Company have factory facilities for turning out 100 twin-cylinder Indians per week and are offering two models of this type, one a 5 H. P. machine listing at $250, here shown with magneto attached, and the other a 7 H. P. racer.

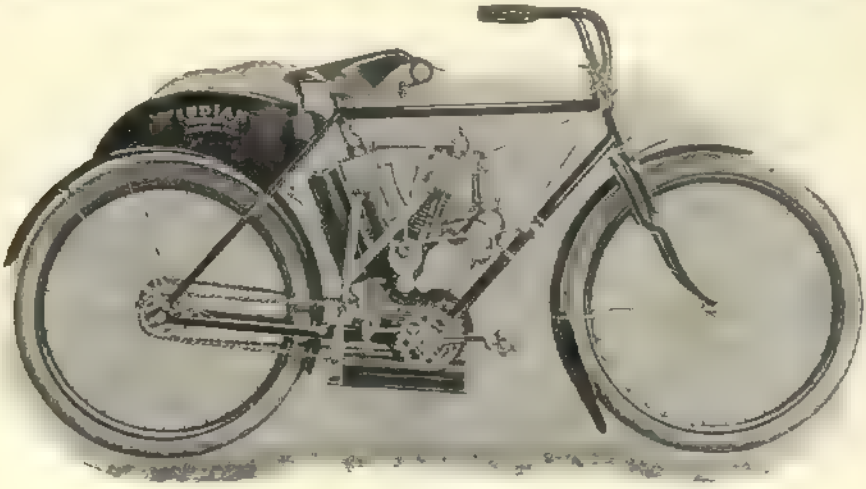
Believing the term horse-power, as commonly used in claiming engine ratings, to be deceptive, the Hendee Company has inaugurated the practice of rating its engines according to the cubic capacity of their cylinders, altho the horse-power rating is also given for convenience.

Mechanical inlet valves are used on all of the Indian models for 1908 excepting the 7 H. P. racer.

The new Indian mechanically operated inlet valve is worked out so simply that all objections formerly raised are said to have been overcome. One cam raises exhaust valve and operates intake valves properly. The inlet valve still retains its position over the exhaust valve so that every charge is drawn in over that member, aiding in the cooling immensely, and doing away with any possibility of overheating. The whole construction is simply an operating rod fastened to the exhaust valve lift, and passing thru a guide on the explosion head, and by means of single cam, depressing the inlet valve at proper intervals. The advantages are that under all conditions, a uniform charge of gas is drawn into the explosion chamber. The valve, being operated mechanically, always opens the same distance and at the proper time, there being no suction to be depended upon nor any varying springs to alter the proportion of the charge. This feature can readily be applied to all previous Indian models, and at slight cost.

Another feature of the 1908 Indians is an oil gage in the motor base, enabling the operator to know exactly how much oil is in the base and guarding against running the engine dry.

In response to a popular demand for magneto ignition, the Hendee Company gives an option on this form of ignition on all 1908 Indians. The extra cost for magneto ignition is $40 and the Bosch magneto is used. It is placed on a specially designed platform directly in front of the motor base, and connected to the make and break shaft by three enclosed gears. The accompanying cut shows the twin-cylinder, 5 H. P. Indian, with magneto attached.



The Indian 5 H. P. Twin Cylinder Motor Cycle with Magneto Ignition.

The 1908 Indian line includes a new 3½ H. P. model (26.96 cubic inches cylinder capacity). This machine resembles the 2¼ H. P. Indian in general appearance, but has a 3¼x3¼ motor, other dimensions and specifications corresponding. Price is $300. It weighs 130 lbs. with full road equipment, 115 lbs. stript. The 5 gallons of fuel carried will run the machine about 100 miles, the one quart of oil, 350 miles.

The main features of the 5 H. P., two-cylinder road model Indian have already been mentioned in these columns, but slight changes can be made to make it more suitable for short men or those who desire a low position, the saddle being set back on stays above the rear wheel in the place usually occupied by the tank, a torpedo-shaped tank being in this case placed on the top frame tube. A slight extra charge is made for these changes.

MOTOR CYCLE DEPARTMENT

No "Exhibition" Motorcycle Races

The Federation of American Motocyclists thru the chairman of its Competition Committee, Roland Douglas, has very clearly expressed itself in the matter of so-called "exhibition races," such as the "contest" perpetrated at Kansas City at the close of the recent six-day bicycle racing.

"There is no such race as an 'exhibition race,'" says Mr. Douglas. "In such events the results are fixed and prearranged, and are therefore dishonest. Such a race is a fraud on the public. As an 'exhibition race' is a fixed race, that form of sport must be stopped, and we mean that it shall be stopped, whether the men involved are amateur riders, professional pace-makers, or plain, ordinary, every day fakers."

New York and the F. A. M. Meet

It seems a foregone conclusion that the 1908 annual meet of the Federation of American Motorcyclists will be held in New York, during a week to be determined later, but which will doubtless either be the week of July 4th or the final week in July.

No other competitor for this honor has made an earnest effort for recognition, so New York is likely to get the sanction by default. The metropolis, in the persons of its motorcyclist enthusiasts, is preparing to make the meet the greatest in the history of the new sport.

Motorcycles and the Post Office

While many motorcycles are used by the carriers on Rural Free routes the post office department requires each carrier to apply for permission before buying or using a machine. It seems that the department regards a carrier's time schedule as something that is almost sacred. A man may jog over his route in five hours with a horse, and cover the same distance in two with a motorcycle. But the department wants to be certain that the schedule, whichever it is, will be religiously maintained. For that reason, the use of motorcycles is ordinarily permitted only when they can be in operation at least eight months in the year.

Motorcycles for Fire Chiefs?

Judging from the letters of inquiry received by an eastern manufacturer of motorcycles, at least one fire department in the United States is seriously considering the purchase of one or more machines. It is believed that for the use of a chief, or assistant chief, much better time can be made in getting a commanding officer on the scene of a fire than is now possible with a swift steed and chief's buggy. Experience with motorcycles and automobiles for fire service has proved a complete success in several foreign cities

Motor Cycles for War Purposes

A most unique bequest is reported from Denmark, to the effect that a wealthy citizen has left his entire fortune to the government, for the purpose of forming a motor cycle corps, which shall be an adjunct to the Danish Army. It is proposed to equip the new contingent with one hundred motor cycles, each of which will carry a light machine gun capable of firing 500 shots per minute. This will be the first regular army motor cycle corps in the world.

Irvington Race to be Again Run

According to the announcement made by the Bay View wheelmen, the historic Irvington-Milburn 25-mile bicycle road race will be held on Decoration day, May 30. Wm Rouff is chairman of the race committee The race will be started at 11 o'clock in the morning as usual.

1908 F. A. M. Meet

At the first meeting of New York motor cyclists in Parlor A of the Grand Union Hotel, New York City, held for the purpose of bringing the Federation of American Motor Cyclists' national meet to the metropolis, great enthusiasm was shown, workers were chosen, officers elected, and money subscribed. Nearly $1,000 was raised before the meeting adjourned. The officers of the F. A. M. meet club are as follows: President, R. G. Betts, of the New York, Brooklyn, Boston and Providence motorcycle clubs; vice-president, L. H. Guterman, Harlem Motorcycle Club; secretary, Henry J. Wehman, Brooklyn Motorcycle Club; treasurer, David Dessau, New York and F. N. Motorcycle Clubs.

F. A. BROWNELL MOTOR COMPANY

POWERFUL—RELIABLE—QUIET

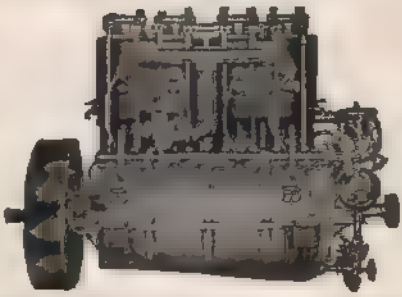
MOTOR

OF ACKNOWLEDGED SUPERIORITY

Embodies the most scientific and approved principles of internal combustion engine construction.

Motors for Automobile, Marine, Tractor, Suburban Car and other purposes.

We also manufacture Transmissions. Light and heavy, for Automobiles and Trucks.



INTAKE SIDE, 4-CYL., 30-34 H. P. MOTOR.

Our CARBURETOR increases efficiency of six cylinder Motors to surprising extent. Let us prove it to you.

Our new circulating water and oil PUMP is so simple, so powerful, so reliable, that—Well, ask us to tell you ALL about it. A postal—a catalogue.

F. A. BROWNELL MOTOR COMPANY,
Successors to Brownell-Trebert Company
634-666 Lexington Ave., Rochester, N. Y.

(ORIGINAL)

Trebert Gas Engine Co.

33 Ford Street
Rochester N. Y.
BUILDERS.

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Eastern Branch:
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204 W. 65th St., Cor. Broadway, New York City

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ARTHUR P. HOMER
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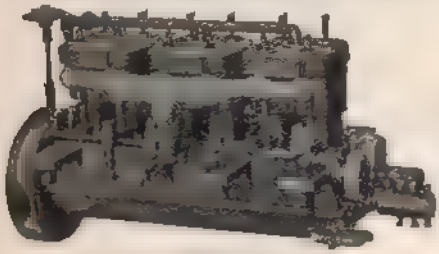
SIZES: 1 to 100 H. P., 2 Cycle and 10 to 120 H. P., 4 Cycle.

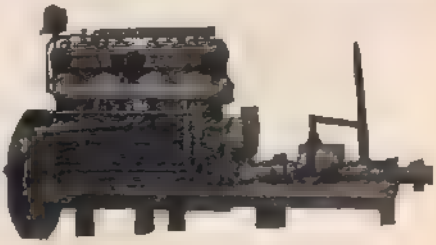
GAS ENGINES, CLUTCHES, TRANSMISSIONS

For Motor Boats, Canoes, Automobiles, Trucks and many other purposes



Catalogue for 4 Cycle Motors, 40 H. P. For Marine and Automobile Purposes

Catalogue Now Ready



4 Cycle, 4 Cylinder 35 H. P. Marine Motor

THE SPEEDWELL 2-CYCLE AIR-COOLED MOTOR

"THE MOTOR WITH A FUTURE"

40 H. P. Motor Without Cooling Hood or Fan.

1908 Models. Just Out.

40 H. P.	4 cylinder		All air cooled and cooled beyond a doubt. Best of material and finest workmanship absolutely guaranteed in every respect.
30 " "	3 "		
20 " "	2 "		
15 " "	3 "		
10 " "	2 "		

Send for quotations.

To manufacturers of light cars or auto buggies we will state that we can furnish our 10 and 15 H. P. motors complete with clutch and a 3 speed forward and reverse selective type transmission at a price that will stun you. Also bevel gear rear axle. This will give you an auto buggy whose details have been tried on touring cars and found best by experience. Does away with all chains or ropes, or friction at very slightly higher price.

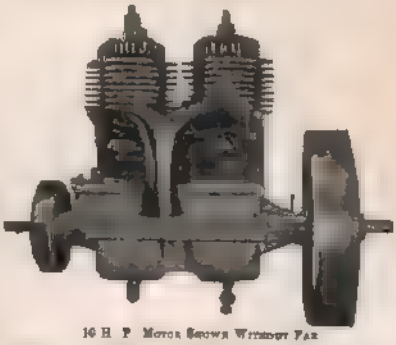
To Automobile Manufacturers

If you are in the automobile business for your pleasure, health, or to get rid of your surplus money, then continue to use 4-cycle water cooled motors. But remember that your fate is only a question of time. To prove this look back over the last year and see all the failures.

The public demands extreme simplicity with 40% less weight and 75% less parts which really spells "Speedwell" 2-Cycle Air-Cooled.

To the Individual Owner

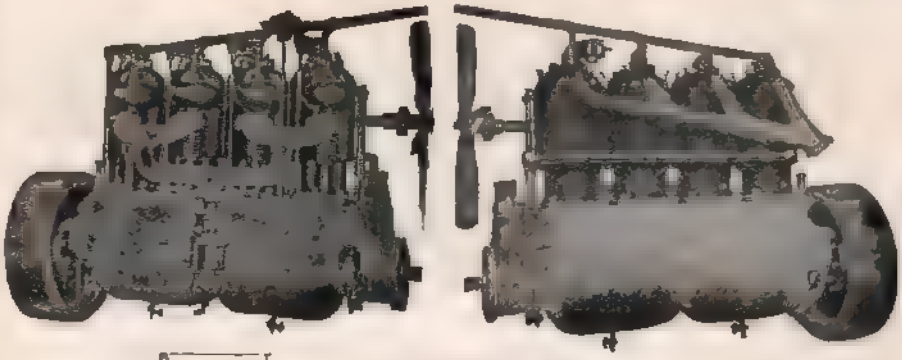
If you buy a new car don't buy trouble but try and buy simplicity. If you have a car with poor motor substitute one of our motors and you will ride thereafter in happiness, free from all valve troubles, and such antiquities, but with a motor of the future.

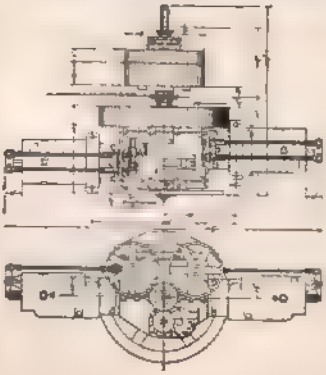


16 H. P. Motor Shown Without Fan.

Not an untried motor but one that has been used for 3 years.

A. H. YOCOM & CO. - - - - READING, PA.





IF interested in the most powerful line of motors ever produced, considering weight, where bearing surface and strength have not been sacrificed, write for circulars giving full description. The 50 H. P. 4 cylinder with complete equipment weighs 480 lbs., the 24 H. P. double opposed with complete equipment weighs 350 lbs. D. O. Built in two sizes, 5 x 5—18 H. P. 5 x 7—24 H. P.

MODEL GAS ENGINE WORKS,

PERU, INDIANA. Lock Box 2033.

EASTERN AND FOREIGN OFFICE, 9-21 Produce Exchange, New York.

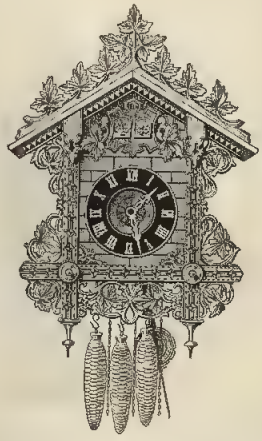
CUCKOO CLOCKS

Each clock is adjusted, regulated and packed in a strong wooden box

No. 84002 Cuckoo clock, height 21 inches, width 14 inches, dial 5¾ inches, half-hour strike and call, solid walnut or oak case, with inlaid ash, ebony, and mahogany ornaments, large size G K movement, front of case made of three layers of wood Per doz. $117 60

No. 84003 Cuckoo clock height 20 inches width 14 inches, dial 5½ inches, half hour strike and call, solid walnut or oak, large size G K movement front of case made of three layers of wood..... Per doz. $168 00

No. 84004 Cuckoo clock, height 21 inches, width 15 inches dial 5¾ inches, half hour strike and call, solid walnut or oak, large size G K movement, front of case made of three layers of wood Per doz. $210 00



No. 84005 Quail and cuckoo clock, height 25 inches, width 17 inches, dial 6½ inches, quarter-hour strike and call, solid walnut or oak, with inlaid ash, ebony, and mahogany ornaments, large size G K movement, front of case made of three layers of wood . . . . . Per doz. $282 00

No. 84006 Quail and cuckoo clock height 26 inches, width 17 inches, dial 6½ inches, quarter-hour strike and call, solid walnut or oak, large size G K movement, front of case made of three layers of wood . . . . . Per doz. $408 00

No. 84007 Quail and cuckoo clock, height 26 inches, width 18 inches, dial 6½ inches quarter-hour strike and call, solid walnut or oak, large size G K movement front of case made of three layers of wood. Per doz. $432 00

PORCELAIN CLOCKS, VASES TO MATCH

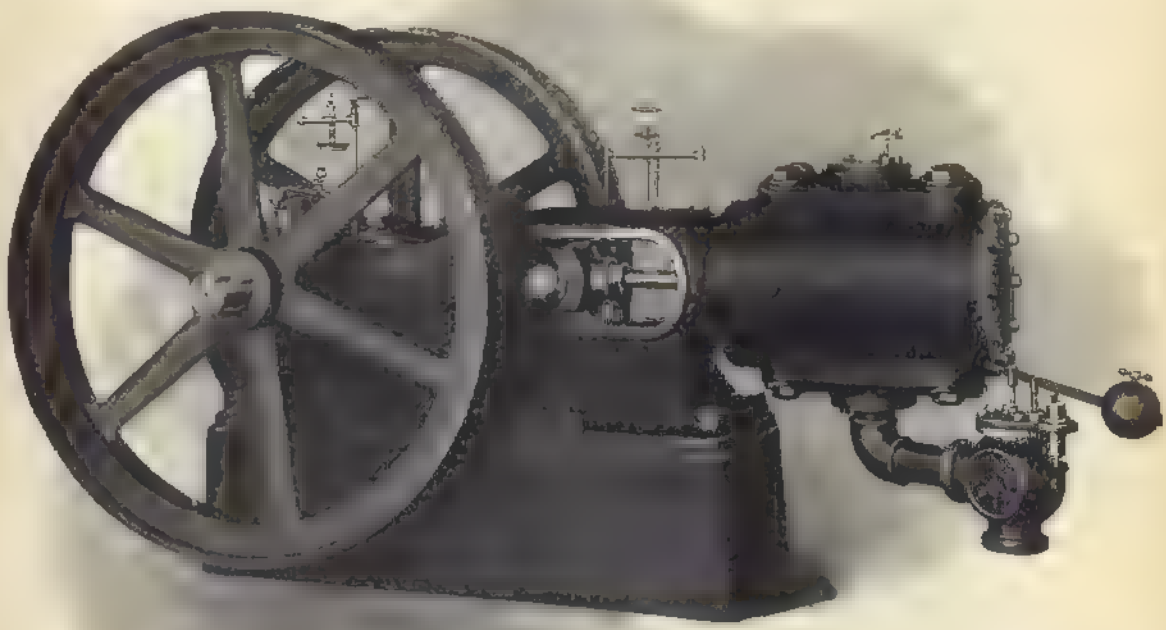
No. Per one set

84008 Porcelain clock and 2 vases, clock case and vases in delicate ivory color shading to light brown, decorated with different color flowers and gold lines, height 8 inches, movement one-day time **$68 00**

No. Per one set

84009 Porcelain clock and 2 vases, clock case and vases in royal blue, decorated with embossed white figures and gold lines, height 8 inches, movement one-day time **$68 00**

THE GARDNER SINGLE BELT-DRIVEN COMPRESSOR—CLASS A



Air Cylinder		Revolutions per Minute	Piston Speed per Minute	Capacity Cubic Feet Free Air		Air Pressure	Horse power	Pipe Openings			Diameter of Shaft	Two Wheel		Floor Space			Approximate Weights	
Diameter	Stroke			Per Minute	Per Revolution			Suction	Discharge	Jacket		Diameter Inches	Face Inches	Length Inches	Width Inches	Height Above Foundation, Inches	Two Wheels	Complete Compressor
6	[illegible]	150	[illegible]	[illegible]	.19	100	6	2	2	1½	2[illegible]	30	4¼	57	[illegible]	31	560	1100
8	[illegible]	150	200	67	.45	100	14	2½	2½	1½	2¾	41	5½	7[illegible]½	28	42	970	1900
10	[illegible]	150	200	[illegible]	.72	50	1[illegible]	[illegible]	3	1½	2¾	41	5½	73	28	42	970	2100
10	[illegible]	150	300	165	1.09	100	32	3	3	1½	3¼	50	6½	[illegible]6	33	51	1400	3100
12	12	150	300	257	1.37	70	33	3½	3½	1½	3¼	50	6½	[illegible]	33	51	1400	3300
12	12	150	300	257	1.57	100	[illegible]	3½	3½	1½	4	56	7	103	37½	57	2660	5500

Equipment furnished with each machine consists of a full set of foundation bolts, nuts and washers, stationary oiling device with the necessary oilers and wipers, a full set of wrenches and an Unloading Device. This Unloading Device is shown in the cut. It is placed in the inlet pipe and connected with the air receiver. When the predetermined air pressure has been attained the unloader shuts off the supply, and the compressor runs without load except the power necessary to overcome the friction of the machine. When the receiver pressure fails, the unloader opens admitting the air, and the compressor resumes its work of compression. The pressure in the receiver is thus kept constant, and there is no waste of power. It is entirely automatic in its action.

SMITH-VAILE, CLASS K-1, DUPLEX BELT-DRIVEN AIR COMPRESSORS

Exhibiting Size 8x8

EQUIPMENT

Soleplate for 8-inch stroke compressors only.
Sight-Feed Lubricators for air cylinders.
Special wrenches required.

SPECIAL

Soleplate for compressors 10-inch stroke and longer.
Unloader valve.
Mechanically operated inlet valves.
Foundation bolts.
Furnished at additional cost.

Size of Cylinders		Revolutions per Minute	Piston Displacement, Cubic Feet Per Minute	Air Pressure	Horse Power	Air Pipe Sizes		Floor Space		Pulley	
Diam	Stroke					Inlet	Outlet	Length	Width	Diam.	Width
8	8	100 to 150	92 to 138	100 lbs.	20 to 28	3½	3	8 ft 3 in	4 ft. 10 in.	5 ft 0 ft.	9½ ft.
10	12	100 " 150	210 " 315	100 "	45 " 65	4	3	11 " 0 "	6 " 1 "	5 " 6 "	18½ "
12	12	100 " 150	310 " 465	100 "	65 " 95	5	3½	11 " 0 "	6 " 3 "	5 " 6 "	18½ "
10	8	100 " 150	140 " 210	70 "	25 " 38	4	3	8 " 3 "	5 " 0 "	5 " 0 "	9½ "
12	12	100 " 150	310 " 465	70 "	53 " 80	5	3½	11 " 0 "	6 " 1 "	5 " 6 "	18½ "
14	12	100 " 150	400 " 600	70 "	70 " 105	5	4	11 " 0 "	6 " 5 "	5 " 6 "	18½ "
16	12	100 " 150	550 " 800	50 "	75 " 115	6	[illegible]	11 " 0 "	6 " 7 "	5 " 6 "	18½ "
18	12	100 " 150	700 " 1,000	40 "	85 " 125	7	5	11 " 0 "	6 " 9 "	5 " 6 "	18½ "

Can also furnish Duplex Belt-Driven Machines either with Simple or Compound Air Cylinders.

ICE BALANCES.

Japanned Heavy Wrought Steel Round Case; Nickel Plated Double Face; Figures and Lines Stamped; Heavy Tinned Wrought Steel Hook and Ring; Heavy Japanned Wrought Steel Loop.

EXTRA HEAVY.

Per Dozen

No. 200—CAPACITY 200 LBS. BY 2 LBS.; Length, of Case 7¼ inches; Diameter of Case 2½ inches; Length over all 16 inches; Weight per dozen about 60 lbs. $54.00

No. 300—CAPACITY 300 LBS. BY 5 LBS.; Length of Case 7¾ inches; Diameter of Case 2½ inches; Length over all 16¼ inches, Weight per dozen about 63 lbs. 60.00

No. 400—CAPACITY 400 LBS. BY 5 LBS.; Length of Case 7½ inches, Diameter of Case 2½ inches; Length over all 16¼ inches; Weight per dozen about 66 lbs. 72.00

One-twelfth Dozen in a Cardboard Box.

ICE SCALES.

GERMAN CRAB ICE SCALES.

Per Dozen

No. 1155—CAPACITY 200 LBS. BY 5 LBS. Polished Spring Steel Frame, Porcelain Brass Face; Figures and Lines Stamped. Polished Wrought Steel Hooks and Rings, Length of Frame 9½ inches, Width of Frame 3½ inches; Length over all 10½ inches, Weight per dozen about 7½ lbs. $15.00

Packed Loose.

STEELYARDS.

Excelsior.

Domestic.

HARTS' PATTERN.

EXCELSIOR.

High Grade Forged Steel; Heavy Polished Beam and Hooks; Cast Iron Poise; Head and Poise Enameled Red.

Nos.	X50	X100	X150	X200	X250	X300
Capacity	50 lbs.x1 oz.	100x¼ lbs.	150x¼ lbs.	200x½ lbs.	250x½ lbs.	300x½ lbs.
Weight per dozen about, lbs.	40	50	66	90	92	118
Per dozen	$9.00	10.00	12.00	15.00	18.00	21.00

One-half Dozen in a Case.

DOMESTIC.

Forged Steel, Polished Beam and Hooks, Cast Iron Poise; Head and Poise Japanned.

Nos.	50D	100D	150D	200D
Capacity	50 lbs.x1 oz.	100 lbs.x2 ozs.	150x¼ lbs.	200x¼ lbs.
Weight per dozen about, lbs.	35	45	70	82
Per dozen	$6.00	7.00	9.00	10.00

One-half Dozen in a Case.

Trade Mark
Black Jack
Registered

SCALE BEAMS.

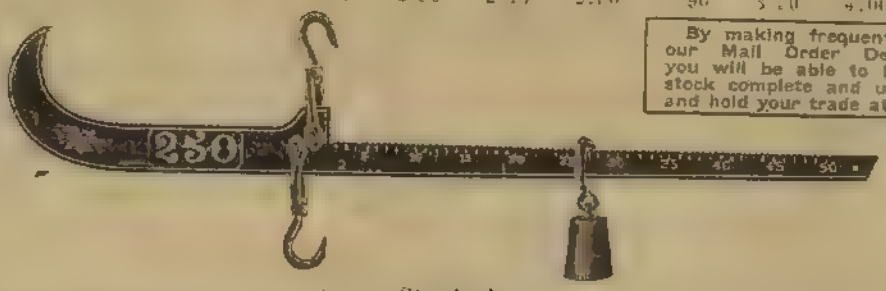
A first-class Scale Beam.
It is the Best.
No Better Made.

BLACK JACK*.

FORGED FROM HIGH GRADE SELECTED STEEL, Fitted with Hardened Pivots and Knife Bearings; Hangers and Pivots properly arranged to prevent binding; Carefully Tested; Complete with Cast Iron Poises and Tempered Steel Hooks; Beams finished in Clear Black Color; Figures Stamped and Enameled White; Striped in Red; Poises and Hooks Enameled White.

Capacity, lbs	150	200	250	300	360	400	500	600	800	1000
Weight per case about, lbs	60	63	108	129	142	163	210	228	[illegible]	[illegible]
Each	$1.50	1.60	1.90	2.10	2.50	2.90	3.50	4.00	5.30	6.66

By making frequent calls on our Mail Order Department, you will be able to keep your stock complete and up-to-date, and hold your trade at home.



Standard.

FORGED FROM STEEL; Hardened Pivots and Bearings; Complete with Cast Iron Poises and Steel Hooks, Beams and Poises Japanned; Figures Stamped and Enameled White.

Capacity, lbs.	150	200	250	300	360	400	500	600	800	1000
Weight per case about, lbs.	60	63	108	129	142	163	210	228	250	300
Each	$1.50	1.60	1.90	2.10	2.50	2.90	3.50	4.00	5.30	6.66

Six in a Case.

SCALE BEAM POISES.

BLACK JACK*.

White Enameled Cast Iron, with Forged Steel Hooks.

Weight, lbs	1	2	3	4	6	8	12	16
	100	250	400	100	800	250	400	500
	150	300	450	150	..	300	450	600
For Beams, lbs	[illegible]			[illegible]		360		1200
				[illegible]		600		
				[illegible]		[illegible]		
Each	$[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

STANDARD

Black Japanned Cast Iron, with Forged Steel Hooks.

Weight, lbs	1	2	3	4	6	8	12	16
	100	250	400	100	800	250	400	[illegible]
	150	300	450	150	...	300	450	[illegible]
For Beams, lbs	[illegible]			[illegible]		[illegible]		1200
				360		[illegible]		
				500		1000		
Each	$[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Packed Loose.

VIOLINS.

This line of inexpensive violins is deservedly popular because of the neatness of finish and style of model and the careful construction. They are undoubtedly the best values that could possibly be picked up at the prices we herein quote.

Prices do not include Bows.

Bows are extra.

No. 4500. Violin. Plain red, well made and of good appearance, red shaded with good substantial ordinary trimmings, just the instrument for a beginner. Each ..... .85

No. 4502. Violin. Very well constructed and finished instrument; shaded red and brown; hardwood back, lined imitation ebony trimmings. Each..... 1.20

No. 4504. Violin. A very sightly instrument, shaded and painted fine maple back, lined, imitation ebony trimmings, well formed scroll head. Each.....1.40

No. 4514. Violin. Hopf model, very finely shaded nut brown color, beautiful inlaid edges, imitation ebony trimmings, well shaped scroll head. Each..1.60

No. 4574. Violin. Stradivarious model; this make is unsurpassed and the model is taken as a copy for all high price instruments, red finish, finely polished genuine ebony trimmings. Each.....2.05

No. 4527. Violin. Steiner model; carefully shaped, excellent finish and sweet tone, fine imitation flamed maple back, imitation ebony trimmings, handsomely inlaid tailpiece, well shaped scroll head. Each...2.25

No. 4551. Fancy Violin. Back is inlaid with three fancy scrolls, the finish is of highest quality and the instruments are all properly adjusted, finely red shaded; imitation ebony trimmings; these are superior to fancy violins that are usually imported. Each..2.60

No. 4528. Violin. Steiner model; very handsomely shaped, excellent finish, fine sweet tone instrument, rich in appearance; trimmed fully with genuine ebony trimmings. Each 3.40

No. 4563. Cremona Italian Violin. Celebrated for the singing, melodious and powerful tone, amber brown, varnished, select quality genuine ebony trimmings; most artistic finish; the adjustment of neck bridge and sound post is accurate and correct. Truly this is one of our best sellers. Each.....4.75

No. 4544. Johann Hoffman Violin. Stradivarious artist model, richly shaped varnish, artist ebony trimmings; this make is remarkable for the beautiful finish and fine tonal quality; each instrument is carefully adjusted and a winner everywhere. Each 5.00

VIOLIN CASES.

No. 4812. Violin Case. Made of canvas, leather bound; opens at end with buckle and strap and handle, full flannel lined. Each.....72

No. 4793. Violin Case. Made of select wood, substantially constructed and finished in a superior manner, provided with patent brass bow holders, black varnished, half lined flannel, with hooks and lock. Each 95

No. 4817. Violin Case. Made of leather pulp; looks and wears just like solid leather, new model, black shellac finish, full flannel lined, leather handle, nickle plated trimmings; close fitting and graceful shape. Each 2.00

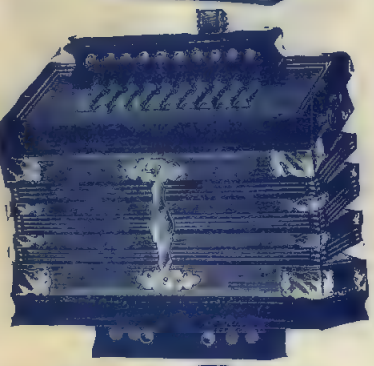
VILOIN PEGS.

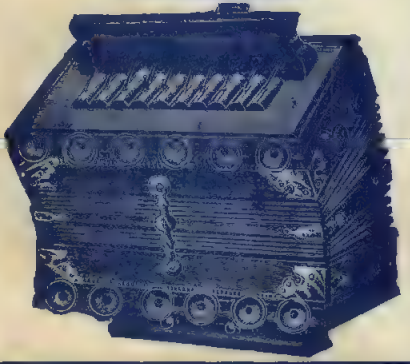
No. 4950. Violin Peg. Regular style, imitation ebony, pearl dot inlaid in head, good model. Doz.....18

No. 4951. Violin Peg. Imitation ebony, pearl dot inlaid in head, concave, fine Paris model. Doz.....30

No. 4956. Violin Peg. Fine rosewood; good Paris model, pearl inlaid dot in head; concave, good quality. Doz 40

GERMAN ACCORDEONS—Best Selling Styles





No. 3. Accordeon, imitation rosewood, polished wood, key cover, 10 German silver keys, 2 basses, one stop, one set of reeds with cornice and tops, mahogany finish, nickle corners and clasps, 11x5 inches. Each ..... .75

No. 6. Accordeon, imitation rosewood, polished wood key cover, 10 German silver keys, two basses, one stop, one set of reeds, with cornice and tops, mahogany finish, nickle corners and clasp, 11x5 inches. Each 1.10

No. 8. Accordeon, nickel and polished wood key cover, black molding, imitation rosewood top, patent leather covered folds, 10 German silver keys, 2 bases, 2 stops, 2 sets of reeds, 12x6 inches. Each 1.30

No. 9. Accordeon, open nickel action, rich walnut molding and tops, double bellows, 10 keys, 3 bases, 2 stops, 2 sets of reeds 10¼x5½ inches. Each 1.35

No. 10. Accordeon, open nickel action, double bellows with nickel corners, and nickel bellows portector, 8 patent leather covered folds, 10 German silver keys, 2 basses, 3 stops, 2 sets of reeds, black carved molding and tops, 10¼x 5½ inches. Each 1.65

No. 12. Accordeon, open nickel action, double bellows with nickel corners and bellows protectors, 8 patent leather covered folds, 10 German silver keys, 2 basses, 3 stops, 2 sets of reeds, mahogany molding and tops, 12x6 in. Each..1.85

No. 21. Accordeon, open nickel action, 12 fancy colored trumpets, nickel corners and clasp, double bellows with nickel bellows protectors, 10 keys, 2 basses, 3 stops, 2 sets of reeds, dark red polished top and red bellows covering, black polished molding, 12x6 inches. Each 1.85

No. 15. Accordeon, open nickel action, double bellows, 10 patent round nickel keys, 2 basses, 2 stops, 2 sets of reeds, imitation cherry molding, fancy gilt ornamented tops, nickel trimmings and clasps, 12x5 inches. Each..... 1.95

No. 39. Accordeon, open nickel action, nickel rim and nickel corners and clasps, triple bellows protectors, 10 keys, 2 basses, 2 stops, 2 sets of reeds, very handsome mahogany moulding and tops, 12x6 in., a good tone, nice appearing, large size accordeon Each..... 2.15

No. 47. Accordeon, open nickel action with nickel border, double bellows with nickel corners and holders, patent leather covered folds, 10 German silver keys 2 basses, 2 stops, 2 sets of reeds, oak polished tops and rounded molding with nickel bands, 10¼x5½ inches. Each 2.15

No. 316. Triumph Accordeon, with an entirely new and superior reed system, ebonized polished tops and molding with silver brass ornaments, open nickel action, double bellows, leatherette folds with nickel corners and trimmings, 10 keys, 2 basses, 2 stops, 1 bellows stop, 1 set of Triumph reeds, mahogany frame, 10½x5 in. Each 1.90

No. 50. Accordeon, open nickel action and nickel border, double bellows, nickel bellows protectors and patent leather covered folds, 10 German silver keys, 2 basses, 3 stops, 3 sets of reeds, black molding, blue tops, 13x6½ in. Each 2.35

No. 318. Triumph Accordeon, ebonized tops and molding, silver brass ornaments open nickel action, double bellows, leatherette folds, with nickel corners and trimmings, 10 sets of keys, 2 basses, 3 stops, 1 bellow stop, 1 voxhumana stop, 2 sets of Triumph reeds, 10½x5 inches. Each 3.25

No. 61. Accordeon, open nickel action, double bellows, engraved nickel corners and clasps, nickel bellows protectors, 13 nickel keys in 2 rows, 4 basses, 4 stops, 4 set of reeds, black molding and tops, metal ornaments on top, 11½x6¾. Each 3.75

RACERS.

GLASCOCK'S.

Hard Maple Levers, Seat and Body Brace; Square Bessemer Steel Front Axle, Cold Rolled Steel Rear Axle, with Turned Journals, so that the Wheels run absolutely true. High Grade Tinned Steel Wheels, with Very Strong Hubs and ⅝ inch Rubber Tires; Body Brace and Levers Finished in a Beautiful Shade of Yellow, Seat in a Brilliant Coaching Blue Ornamented with a Design of the American Eagle in Colors. Axles and Gear Wheels Enameled Black. Two Coats of Best Varnish make all these Colors Water-Proof. These Cars have no 'Dead Center;' they have Three Different Motions, accomplished by using Two Strong Connecting Rods between the Propelling Levers and the Gear Wheels, a Double Fifth Wheel is used giving the Driver Perfect Control in Guiding the Car: Gear Wheels are Enclosed, Making it Impossible for the Children to have their Fingers Mashed or their Clothing Torn by being caught in the Wheels. A Specially Designed Foot Guard makes it possible to Guide the Car with perfect ease and without danger of catching the Foot in the Wheel.

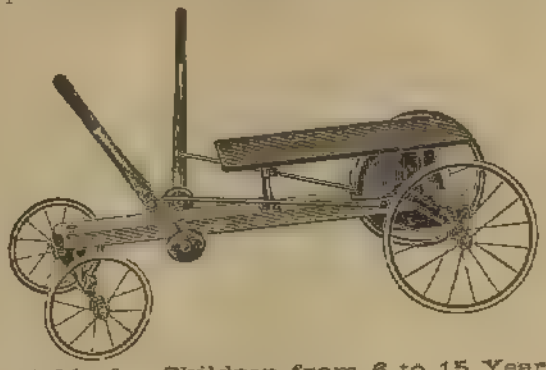
Suitable for Children from 6 to 15 Years of Age.

Per Dozen

No. 1G—Length 34 inches; Width 17 inches; Height 13 inches Rear Wheels 12 inches, Front Wheels 8 inches in Diameter; Weight per dozen about 420 lbs $72.00

Per Dozen

No. 2G—For Two Children; Length 56 inches; Width 17 inches; Height 14 inches; Rear Wheels 12 inches, Front Wheels 8 inches in Diameter; Weight per dozen about 720 lbs..$108.00



Suitable for Children from 6 to 15 Years of Age.

Built Especially for Girls, having a space of 11 inches between the Levers, which is accomplished by means of an Iron Brace attached to the Bottom of the Body Brace.

Per Dozen

No. 3G—Length 34 inches; Width 17 inches; Height 13 inches; Rear Wheels 12 inches, Front Wheels 8 inches in Diameter; Weight per dozen about 480 lbs.....$78.00

Suitable for Children from 2 to 5 Years of Age.

Per Dozen

No. 4G—Length 27 inches; Width 15 inches; Height 9 inches; Rear Wheels 8 inches, Front Wheels 6½ inches in Diameter; Weight per dozen about 360 lbs.....$66.00

One-sixth Dozen in a Crate.

BABY WALKERS.

Per Dozen

No. 1—GLASCOCK'S BABY WALKER AND TENDER COMBINED; Cherry Finished; Hard Maple Rims, Seat and Tray; Top and Bottom Rims Connected by Four Coiled Steel Wire Springs, which act as a Cushion; Lower Rim has Four Ball Bearing Casters, making the "Walker" Easy to Push; Adjustable Seat held in position by means of Three Russet Leather Straps, which Fasten to the Top Rim. By the use of this 'Walker,' the Baby not only learns how to walk, but is given an opportunity to become strong and healthy through exercise, without danger of getting injured. Top Rim 13 inches in Diameter, Bottom Rim 27 inches in Diameter; Tray 9 inches in Diameter; Weight per dozen about 70 lbs..$48.00

One-quarter Dozen in a Crate.

HAND CARS.

For Pleasure and Exercise.

Per Dozen

No. 300—"IRISH MAIL" Made entirely of Wood Steel and Malleable Iron; Wood Parts are made of Selected Oak. The Reaches or Long Parallel Bars and Handle are Painted with Three Coats of Red Paint; Seat is Painted with Three Coats of Green Paint. The Whole Machine is Neatly Stenciled and Transferred with Attractive Designs. Running Gear is Finished in Jet Black. Wheels have Extra Heavy Spokes and Hubs and are Rubber Tired. Front Wheels 8 inches in Diameter, with Twelve Spokes; The Rear Wheels 12 inches in Diameter, with Sixteen Spokes. Nicely Tinned. This Machine will easily Sustain a Weight of 400 lbs., and is Suitable for Children from 3 to 12 years old. Length 41 inches. Width 20 inches. Height 23 inches. Weight per dozen about 396 lbs.....$72.00

Per Dozen

No. 310—"FLYING DUTCHMAN"; Made of same kind of materials as No. 300 and same general construction, except Wood Parts Finished entirely in Red and built on larger lines; Is built for Two Riders and has Two Seats and Two Levers. Wheels have Extra Heavy Spokes and Hubs and are Rubber Tired. Front Wheels, 8 inches in Diameter, with 12 Spokes, Rear Wheels, 12 inches in Diameter, with 16 Spokes. Nicely Tinned. This Machine is Suitable for Children from 5 to 15 years old. Length 57 inches; Width 20 inches; Height 23 inches; Weight per dozen about 540 lbs.....$108.00

One-twelfth Dozen in a Crate.

HAND CAR LEVERS.

Per Dozen

No. 300L—DETACHABLE LEVERS; Can be Attached to the Rear of No. 300 Car, so that Two Children can operate the Machine at the Same time; Weight per dozen about 48 lbs.....$24.00

Packed Loose.

Natural Finish Hardwood Top, Hand Decorated and Varnished, Roller Bearing Wheels, with Heavy Steel Felloes and Tires, Solid Wood Spokes and Heavy Cast Hubs. Front and Rear Axles strongly Braced with Steel Braces; Size of all 38x8¾ inches; Diameter of Wheel 11 inches.

COASTERS.

STAR BIKE.

Per Dozen

No. 3—ONE REAR WHEEL—The Front Wheel is kept in a rigidly Straight Position by means of a Stiff Steel Spring, a Friction Clutch which attaches to the Front Axle enables the Rider to come to a full stop by a slight turn of the hand on the Axle; Directed from the Front Axle by using either the Hands or the Feet; Weight per dozen about 156 lbs. $36.00

STAR TRIKE.

Per Dozen

No. 2—TWO REAR WHEELS—Equipped with a Hardwood Steering Handle; Hand Brake, operates on one of the Rear Wheels; Weight per dozen about 264 lbs.....$48.00

One-sixth Dozen in a Crate.

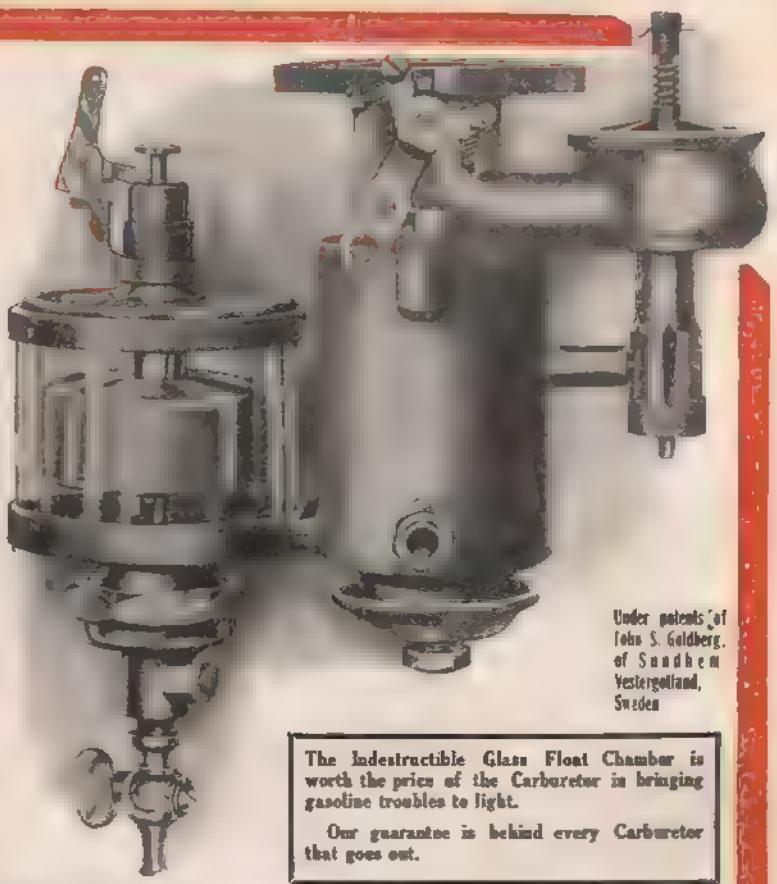
POINTS AND WHYS of GOLDBERG

THE MECHANICALLY PERFECT

CARBURETORS

"THE CARBURETOR THAT MAKES GOOD SUMMER AND WINTER

Try One at Our Expense and have no more starting troubles or wrong mixtures resulting from weather changes



Under patents of John S. Goldberg, of Sundbem Vestergotland, Sweden

The Indestructible Glass Float Chamber is worth the price of the Carburetor in bringing gasoline troubles to light.

Our guarantee is behind every Carburetor that goes out.

The **GOLDBERG** water jacketed mixing chamber acts as a weather equalizer.
No more trouble on one speed when a good adjustment is obtained on another.
Because of its loable compensation the **GOLDBERG** acts alike on all speeds.
No more flooding.
The large float and needle valve and heavy spring make action positive.
No more trouble from dirt in the gasoline.
The screen in the intake pipe keeps it all out.
Write at once for Circular No. 4, which tells the whole story.

Goldberg Motor Car Devices Mfg. Company

1253-1255 Michigan Avenue :: Chicago, Illinois

OFFICERS AND DIRECTORS: ALFRED STROMBERG, President JOHN S. GOLDBERG, Vice-President ANDROV CARLSON Treasurer CHARLES W. STICER, Secretary and General Manager CHARLES A. BROWN

GOLD WATCH—FREE

Guaranteed For Ten Years

Send us thirty-six "Neverleak" Certificates and you will receive this elegant solid gold-filled watch, free. It is a No. 12 size, very latest thin model, and has a fine, 7-jewel American movement, bridge model, nickel damaskeened, with cut expansion balance, safety pinion, screw bankings, straight line lever escapement, hardened and tempered Breguet hair spring, quick train and exposed winding wheels and is stem-winding and stem-setting. Guaranteed to wear exactly like solid gold for ten years, which means that with good care it will last a lifetime. Any certificates received with "Neverleak" will be accepted on the watch. Twenty-four certificates will entitle you to a Regulator Clock, or twelve certificates to the Brass Sign mentioned in previous ads. Send certificates direct to

BUFFALO SPECIALTY COMPANY, BUFFALO, NEW YORK.

The Emergency Wheel

A boon to autoists. The most simple emergency device that has yet been introduced to the automobile trade. No unnecessary parts to get out of order. Does not require the use of a jack or tools, and can be attached in a few seconds.

The Emergency Wheel consists of a steel rim with two stationary clamps and two adjustable clamps. In case of a puncture, you place the stationary clamps over the rim of the wheel, push the car forward and the adjustable clamps will slip over the rim. All that you have to do is to fasten the two thumb-screws, which are beveled, giving a leverage so that you can tighten them without the use of a wrench and they will not jar loose.

Every motorist should have one. *Write for prices and further particulars.*

BLACK MFG. CO., 1118-1120 W. Wayne St., Ft. Wayne, Ind.

New York Office, KEENEY & MASON
Thoroughfare Bldg., Broadway, 57th and 58th Sts

Chicago Office, CHAS. FALK
1303 Michigan Avenue

LATHES.

BARNES', with Velocipede Foot Power.

Each

No. 55—VELOCIPEDE (Factory No. 3); Painted Iron Frame, Gear and Pulleys; Including 3 Centers (1 a Spur), 2 Tool Rests and Sockets, and 1 Turned Face Plate. Height over all 48 inches. Floor Space required 24x56 inches; Distance between Centers 36 inches $35.00

Weight Each about 230 lbs., Boxed for Shipment, about 320 lbs.

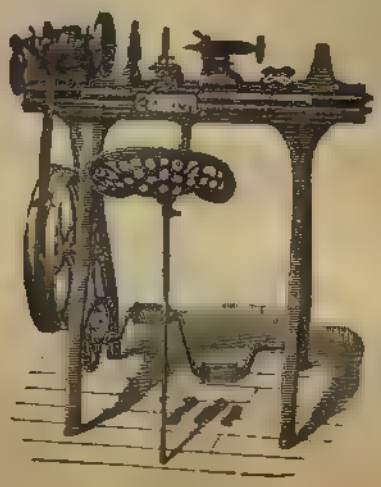
No. 55 Lathe is designed for Wood Turning. Will take in Stuff 12 inches in Diameter and 3 feet Long. Speed can be varied from [illegible] to [illegible] Revolutions per minute. Seat can be [illegible] readily [illegible] to any part of the Bed that the work requires. The Lathe is made entirely of Iron and Steel except the Bed, which is Wood. Centers are accurately fitted to Taper Holes. No Wrench is required to adjust the Tail Stocks or Tool Rests and Sockets. Hand Wheels being used instead.

Each

No. 93—VELOCIPEDE (Factory No. 4); Painted Iron Frame, Gear and Pulleys, Including 1 Turned Face Plate, 2 Pointed and 1 Spur Centers, Hand Rest, Wrenches and Belting. Height over all 44 inches, Floor Space required 24x34 inches, Distance between Centers 20 inches $50.00

Weight Each about 210 lbs.; Boxed for Shipment, about 265 lbs.

No. 93 Lathe is designed for Turning both Wood and Iron, and for Boring, Drilling, Polishing, etc. It is a desirable size for small work. It swings 7 inches and takes 20 inches between centers; The speed can be varied from [illegible] to [illegible] Revolutions per minute and the motion can be Started, Stopped or Reversed instantly. This Lathe is made entirely of Iron and Steel. The Bed is solid and has V-shaped Projections, over which the Head and Tail Stocks, Hand and Side Rests are fitted. The Lead Screw for the Carriage is operated by hand, by it the Carriage can be traveled 20 inches, the entire distance between Centers; The Carriage can be engaged or disengaged instantly from the Lead Screw. The Cross Feed Wall on which the Tool Post moves can be set at any desired angle for Taper Turning and Boring. The Tail Stock can be moved and set at any point desired by the simple cutting of the Hand Wheel; or it can be taken off entirely thus leaving the Bed free for Face Plate or Chuck Work. The Head Stock Spindle is Hollow; Size of Hole [illegible] inch. The Lead Stock Spindle has Taper Bearings and is capable of very nice adjustment; The Tail Stock Center is Self-Discharging.



No. 97.

Each

No. 97—VELOCIPEDE (Factory No. 4½); Painted Iron Frame, Gear and Pulleys; Height over all 46 inches; Floor Space required 24x42 inches; Distance between Centers 25 inches; Swings 9 inches.....$75.00

Weight Each 270 lbs.; Boxed for Shipment, about 340 lbs.

No. 97 is a Back-Geared Screw Cutting Lathe; Feeds Right or Left, and Cuts Screws Right or Left without change of Gearing; The Carriage is Adjustable for Taper Boring or Ball Turning; It is thoroughly Gibbed for taking up wear.

The Tail Stock has Side Movement to Adjust Centers for Turning Tapers; The Head Stock has Hollow Spindle for Rods up to ⅜ in.; All the Gearing is Cut from Solid Metal. All Parts are made of Steel where this would best serve the purpose.

It is Indexed for Threads 5 to 40 and the Change Gears Furnished can be combined for many other Threads. It Swings 4⅜ in. over Tool Carriage.

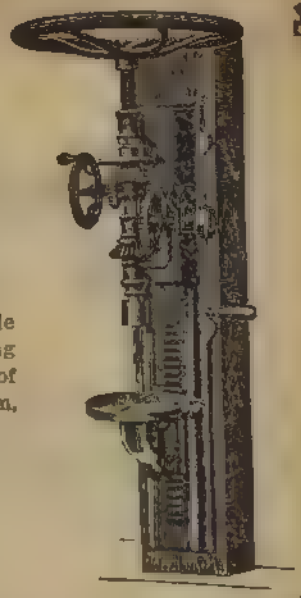
The Small Pulley on Cone is 2½ in., the Large Pulley 4½ in., It has Three Speeds, and is suitably arranged for Heavy or Light Work in Turning or Polishing.

WHEN IT IS POSSIBLE TO DO SO, CHUCKS SHOULD BE FITTED TO LATHES BEFORE BEING SHIPPED

DRILLING MACHINES.

GREEN RIVER.

Black Painted Cast Iron Frame, Balance Wheel, Table and Gearing; Steel Shafts, Axles, Crank and Swinging Table; Ball Bearing Shaft; Automatic Feed, capable of Three Changes of Speed; Table fitted to Forked Arm, can be removed for Drilling Tires on Wheels.



Each

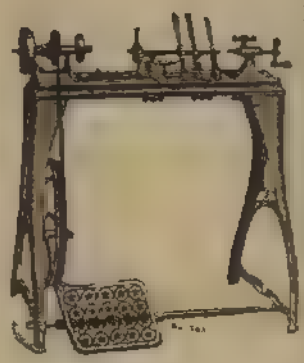
No. 740—Will Drill up to 1 inch Hole; Drills to center of 15 inch Circle; Fitted for Drill Bits with ½ inch Round Shank; Diameter of Balance Wheel 16 inches; Diameter of Table 8 inches; Crank can be adjusted to any Length up to 18 inches; Height over all 40 inches; Weight each about 185 lbs..... $20 00

Each

No. 742—Will Drill up to 1 inch Hole; Drills to center of 15 inch Circle; Fitted for Drill Bits with 41/64 inch Round Shank; Diameter of Balance Wheel 22½ inches; Diameter of Table 9½ inches; Crank can be adjusted to any Length up to 18 inches; Height over all 50 inches; Weight each about 232 lbs.....$37.00

One in a Crate.

LATHES.



Drab Painted Cast Iron Frame, Drive Wheel Treadle, Slide Rests and Heads; Cast Steel Bed, Steel Axles and Shafts. Complete with 5 Turning Tools; The Drive Wheel has Two Grooves of Different Depths on its Face to give a Change of Speed; The Lathe Head has a 2 inch Face Plate, Spur Center, Screw Center and Drill Chuck to hold Twist Drills up to ¼ inch in Diameter. On the outer side of the Pulley is fitted an Emery Wheel 4½ inches in Diameter by ⅞ inch Thick, and a Drill Spindle to hold Small Drill Points for Wood Boring; The Tail Stock has a Screw Feed Center which is secured at any point by a Clamp.

Each

No. 1—GOODELL'S; Swing of Lathe 5 inches; Length of Bed 24 inches; Distance between Centers 13½ inches; Height over all 24 inches; Diameter of Drive Wheel 13½ inches; Round Leather Belt ⅜ inch Thick; Weight each about 56 lbs.....$10.00

One in a Case.

SCROLL SAW ATTACHMENT.

Each

No. 2—Scroll Saws; To fit No. 1 Goodell's Lathe; Drab Painted Cast Iron Frame; Polished Hardwood Arms; Attached to Lathe with one Heavy Bolt and Nut; Length over all 21 inches; Weight each about 10 lbs..... $1.50

One in a Case.

CIRCULAR SAW ATTACHMENT.

Each

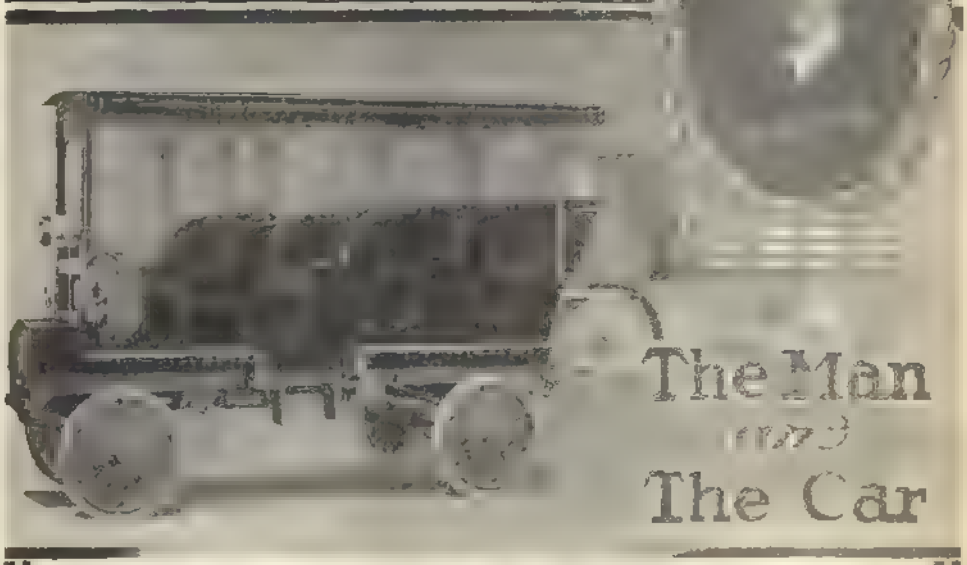
No. 3—Circular Saw; To fit No. 1 Goodell's Lathe; Consisting of a Saw Table 6x7 inches; One Circular Saw 3 inches in Diameter, and a Saw Arbor; Weight each about 1 lb..... $1.00

Packed Loose.

GRABOWSKY

WE GUARANTEE SERVICE

POWER WAGONS


The Man
and
The Car

The First Car in the World Built on the Quick Detachable Independent Unit Basis, Which Insures Uninterrupted Service and Low Cost of Maintenance

The latest production of Max Grabowsky, the pioneer commercial car designer of America. There are more cars of Max Grabowsky's design in actual service than any other type of commercial car [illegible] country.

TO THE BUSINESS MAN

We have organized an Expert Service Bureau, and will gladly advise any business man, with at charge regarding the actual saving he can make by using power wagons either for delivery or passenger work. Valuable experience is at your disposal. WRITE TO-DAY, OUT [illegible]

GRABOWSKY POWER WAGON CO. SERVICE BUREAU

80 CHAMPLAIN STREET - - - - - - - - - DETROIT, MICHIGAN

We will Exhibit in New York, only at Grand Central Palace Auto Show, opening Dec. 31st.

COMMERCIAL VEHICLE NOTES

The Bucyrus Transportation Co. [illegible] has been incorporated [illegible] [illegible] passenger [illegible] [illegible]

[illegible]

The Duluth, (Minn.) police department will soon have an auto [illegible] in which to haul prisoners to the city [illegible]

The Imperial Taximeter Co., of New York City, has been incorporated with a capital of $6,500 to deal in, rent and use taxicabs.

[illegible]

Todd & Kraft Co., wholesale fruit dealers of Des Moines, Iowa, recently installed a Rapid auto truck.

The Automobile Factory's Annex

Auto-parts, Transmissions, Clutches, etc.

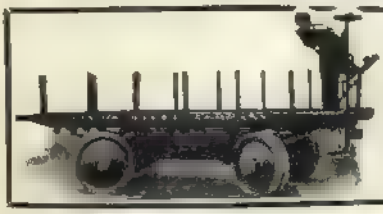
We make parts to your drawings, the way you want them, in a shop equipped with modern tools. Cam hardening plant, grinders, etc., with a live mechanic as factory manager.

GENERAL MANUFACTURING COMPANY, ELKHART, INDIANA, U. S. A.

Parsons' Manganese Bronze Axles

Stronger than steel. Thousands in use. None have ever broken.

The Wm. Cramp & Sons Ship and Engine Building Company Philadelphia, Pa.



4-Wheel Drive Gas-Electric

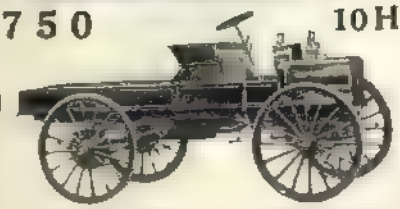
(Something New)

Send for Catalogue. Agents Wanted.

Couple-Gear Freight-Wheel Co.

560 BUCHANAN ST., GRAND RAPIDS, MICH.

$750 10 H.P.



Chase Motor Wagon

Capacity 500 to 1000 lbs. Two cylinder, two cycle, air-cooled, 10 H. P. Motor.

Write for Catalog

Chase Motor Truck Co., Syracuse, N. Y.

POST CARDS

For Advertising Purposes

Send for price list and sheet No. 101 containing 32 illustrations and suggestions for headings. Big business getters. Try a series.

CHILTON PRINTING CO.

Market and 49th Sts., Philadelphia

100 MANUFACTURERS Using and Testing **INDESTRUCTIBLE STEEL WHEELS** O. K. them in every way. Write us for information. Indestructible Steel Wheel Company 1221 Michigan Ave. 4274 Chicago

Van Motor Wagons

Our output sold for several months ahead. Orders accepted for delivery in 4 months only.

H. F. VAN WAMBEKE & SONS

Elgin, Illinois

The Rapid

One-Ton Rapid Truck

Beats Horses and Wagons

LET me arrange for a demonstration of the proper style Rapid for your use. Under almost all conditions, Rapids are much more economical to run and maintain than horses and wagons. Write me your requirements fully and let me inform you of all facts about our Rapid Trucks—Merchants' Delivery Styles, Passenger Cars—Hotel Busses, Hospital Ambulances, Police Patrols, etc. Investigate Rapids from every point of view by addressing

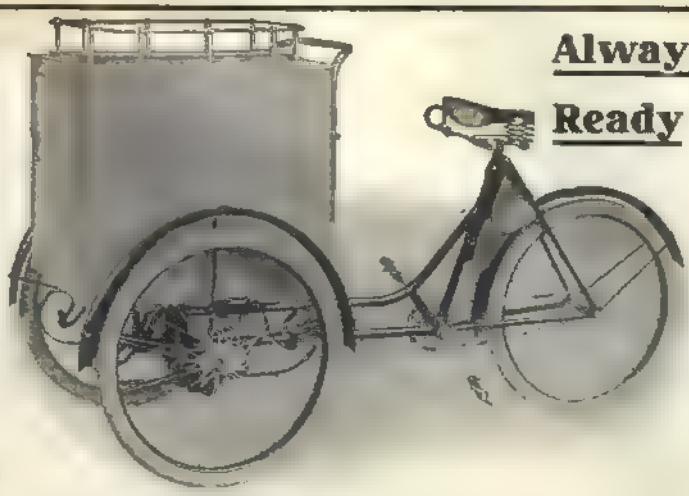
Agents' Offer

ASK about my advantageous offer to garage owners to represent Rapids. Rapids are in demand all the year round. We receive thousands of inquiries at the factory from our advertising and from business men who have seen Rapids in use. We refer all these to our agents. Write for particulars to

H. G. Hamilton, Treas., Rapid Motor Vehicle Co., 509 Rapid St., Pontiac, Mich.

Reduces Delivery Cost

Always Ready



Does Not Eat

The Consolidated Package Car, Price $100

Solves the quick, economical delivery proposition for every man who has anything to deliver. You can place several in your city and make money. Write to-day.

THE CONSOLIDATED MFG. CO., 1710 Fernwood Ave., Toledo, O.

We also make Yale Bicycles, Hussey Handle Bars, Snell Bicycles, Yale-California Motor Cycles

Chilton Stock Designs for POST CARDS

are money-makers for automobile dealers.

Send for Specimen Sheet No. 101

CHILTON PRINTING COMPANY
Market and 49th Streets, Philadelphia

M. HOHNER'S ACCORDEONS—Continued

No. 786

No. 785 One of the latest styles of Hohner Accordeons. Regular German model instrument to which nine brass organ pipes are attached. The reeds are so constructed that all the tones pass into a metal sound channel and are then forced out through the brass pipes. This produces a soft and very agreeable tone. Finished in ebony, has 2 sets of reeds, 10 button keys, and double bellows with 10 folds and nickel corner protectors. Has patent self-acting spring clasps and metal rests at the base which prevent scratching of the wood work, size 5½x10¾ . . . . . Each $8 80

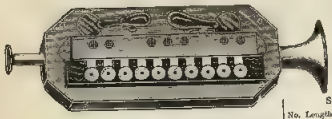
786 One of the latest styles in Hohner Accordeons. Regular German model accordeon, with an attachment of 6 brass trumpet horns. The trumpet horns are directly connected with a wooden sound box into which the tone passes and finds its way out through the horns. The horns lend a very pleasing tone to the reeds and also increase the tone power considerably. The vibration of the sound within the brass horns is so pronounced that the tonal effects are given a very pleasing metallic blend. Woodwork is finished in dark mahogany. Has fancy moulding, double bellows with 10 folds and brass corner protectors, metal trimmings, patent self-acting spring clasps. There are 10 button keys with bone tops and 2 base keys, size 5½x10¾ $9 20

No. 788

No. 1B 10 keys, 20 steel bronze reeds, 2 basses, cornet mouthpiece, and sliding cover. . . . . Each $2 80

No. 2B 10 keys, 20 steel bronze reeds, 2 basses, cornet mouthpiece, has detachable horn attachment which beats flies and increases the tone . . . . . Each $3 50

No. 3B 10 keys, 20 steel bronze reeds, 2 basses, cornet mouthpiece, has five separate brass horns leading to all reeds, which produces wonderful tone effects and are detachable. . . . Each $4 00



BLOW ACCORDEONS

No. 76345 Nickeled metal body, 10 celluloid keys, length 13½ inches. . . . . Per doz. $14 40

JEWS-HARPS

3 dozen in package

Steel Frames			Brass Frames			
No.	Length	Per doz.	No.	Length		Per doz.
1	2⅝ inches	$0 48	4	3	inches	$1 20
2	2¾ "	58	5	3½	"	1 50
3	3½ "	1 00	6	3	" fancy frame	1 60

TAMBOURINES

No.					Per doz.
7	7-inch maple hoop, sheepskin head, 2 sets jingles				$5 80
8	8 " " " "			4 "	7 50
9	8 " " " "			6 "	8 40
10	10 " " " "			3 "	10 00
11	10 " " " "			9 "	10 40
18	8 " " calfskin			8 "	8 00
19	10 " " " "			3 "	10 70
28	8 " maple painted hoop, calfskin head, 9 sets jingles				11 76
29	10-inch maple painted hoop calfskin head, 12 sets jingles				20 00

VIOLINS

Prices quoted do not include bows

GERMAN

No.		Each
13	Fine shaded back, good model and finish	$2 90
14	Red color shaded good model and finish, inlaid edges	3 40
41	Kohler model, handsome red color, shaded, highly polished	4 50
39	Salzard model dark red color, polished, inlaid edges	4 90

HOPF MODEL

No.		Each
109	Good quality, inlaid edges.	$3 84
33	Swelled top and back	5 60
84	Swelled top and back, ebony finger-board and tail-piece	6 50

WITH EBONY FINGER-BOARDS AND TAIL-PIECES

No.		Each
70	Reddish brown color, shaded, highly polished	$3 80
420	" " " high varnish finish	5 00
421	Medium red brown color high finish	5 20
66	Russian model dark red color, shaded, highly polished, rounded edges, ebony finger-board and tail-piece	8 00
174	Salzard model dark red color, polished	8 50
733	Copy of Francois Barzon, medium red color, highly finished, full ebony trimmed.	16 00
902	Francois Guillmont, Amati model, reddish brown color, highly finished, rosewood pegs	20 00
964	Francois Guillmont Amati model, dark amber color varnish, flamed back and sides, rosewood pegs	22 00
457	Guarnerius model reddish brown color, highly polished, full ebony trimmed	22 50

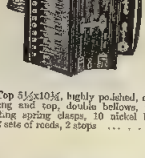
STAINER MODEL

No.		Each
171	Medium red color, shaded, pearl inlaid tail-piece.	$5 00
380	Amber color, shaded good model and finish, ebony finger-board, etc	5 34
392	Light red color, shaded, highly polished	7 50
394	Light brown color, finely shaded, high polish finish, full ebony trimmed	8 50
398	Ruddy red color, high polish finish, fine model good workmanship, full ebony trimmed	16 00

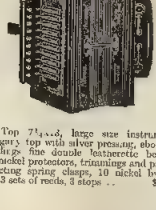
STRADIVARIUS MODEL

No.		Each
76	Medium red brown color, shaded, highly polished, ebony finger-board, etc.	$3 60
716	Medium red color, amber shaded, highly polished ebony finger board, etc	8 25
721	Dark red brown color, light shading and edges, highly polished, full ebony trimmed	8 50
801	Light amber color flamed wood, shaded, light edges, high finish polish, full ebony trimmed	8 50
602	Medium red transparent amber varnish highly polished, ebony trimmed finger-board, etc	9 00

M. HOHNER'S ACCORDEONS



No. 572 Top 5½x10½, highly polished, colored moulding and top, double bellows, patent self-acting spring clasps, 10 nickel button keys, 2 sets of reeds, 2 stops . . . . . Each $4 40

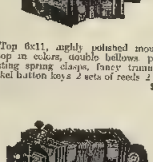


No. 593 Top 7½x8, large size instrument, mahogany top with silver pressing, ebonized mouldings fine double leatherette bellows with nickel protectors, trimmings and patent self-acting spring clasps, 10 nickel button keys, 3 sets of reeds, 3 stops . . Each $9 20

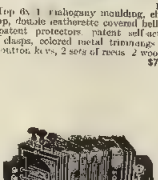
No. 521 Top 8x13¾, ebonized moulding, mahogany top, silver pressed ornaments, 2 double leatherette bellows, brass bellows protectors, open keyboard, double row of keys, bone bass keys, patent self-acting spring clasps, colored metal trimmings, 21 pearl keys, 4 sets of reeds, 1 bass keys, 4 wooden stops Each $18 00

No. 464 Top 6x11½, ebonized woodwork, fancy white panels with open fret work, fine leatherette bellows, with 14 folds and brass corner protectors, colored metal trimmings and leather clasps 21 pearl button keys, 8 pearl bass keys, 4 sets of reeds Each $17 80

VIENNA MODELS

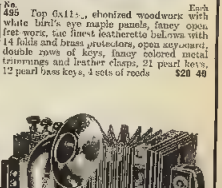


No. 562 Top 6x11, highly polished moulding and top in colors, double bellows patent self-acting spring clasps, fancy trimmings, 10 nickel button keys 2 sets of reeds 2 stops Each $5 00



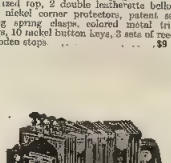
No. 632 Top 6x11 mahogany moulding, ebonized top, double leatherette covered bellows with patent protectors patent self acting spring clasps, colored metal trimmings 10 nickel button keys, 2 sets of reeds 2 wooden stops Each $7 00

No. 490 Top 5½x8½, ebonized frames and key boards, imitation oak panels with fine open fret-work, leatherette covered bellows with 10 folds and brass corner protectors, open keyboard, colored metal trimmings and leather clasps 10 pearl keys, 4 pearl bass keys 2 sets of reeds Each $8 60



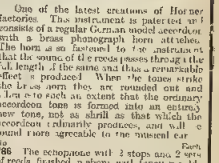
No. 485 Top 6x11½, ebonized woodwork with white bird's eye maple panels, fancy open fret work, the finest leatherette bellows with 14 folds and brass protectors, open keyboard, double rows of keys, fancy colored metal trimmings and leather clasps, 21 pearl keys, 12 pearl bass keys, 4 sets of reeds Each $28 40

No. 512 Top 5¾x10⅝ colored top and moulding open action, double bellows, patent bellows corners, self-acting spring clasps, 10 nickel button keys 2 sets of reeds, 2 stops Each $5 60



No. 533 Top 6½x11⅝, mahogany moulding, ebonized top, 2 double leatherette bellows with nickel corner protectors, patent self-acting spring clasps, colored metal trimmings, 10 nickel button keys, 3 sets of reeds, 3 wooden stops . . . . . Each $9 60

No. 460 Top 5¾x10, ebonized woodwork, fancy panels with open fret work, leatherette bellows with 10 folds and brass corner protectors, colored metal trimmings and leather clasps 10 pearl button keys, 4 pearl bass keys 2 sets of reeds Each $9 20

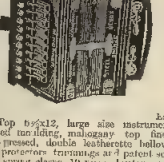


One of the latest creations of Hohner factories. This instrument is patented and consists of a regular German model accordion with a brass phonograph horn attached. The horn is so fastened to the instrument that the sound of the reeds passes through the full length of the same and thus a remarkable effect is produced. When the tones strike the brass horn they are rounded out and blended to such an extent that the ordinary accordeon tone is formed into an entirely new tone, not as shrill as that which the accordeon ordinarily produces, and will be found more agreeable to the musical ear

No. 786 The echophone with 2 stops and 2 sets of reeds finished in ebony with fancy moulding, double bellows with 19 folds and brass corner protectors self-acting spring clasps and metal trimmings, 10 key with bone tops and two basses, size 5¾x10¾ Each $11 60

790 Same as No. 786 with 3 stops and 4 sets of reeds, finished in mahogany with fancy moulding, triple bellows with nine folds and brass corner protectors, self-acting spring clasps metal trimmings, 10 button keys with bone tops and two bass keys size 6¾x11 . . . 14 00

791 Same as No. 786 with 4 stops and 4 sets of reeds finished in ebony with fancy moulding, six triple bellows with 9 folds and brass corner protectors, patent self-acting spring clasps and metal trimmings, there are 10 button keys with bone tops and two bass keys, size 6¾x12¾ 16 40



No. 592 Top 5¾x12, large size instrument, ebonized moulding, mahogany top finely silver-pressed, double leatherette bellows, brass protectors trimmings and patent self-acting spring clasps 10 nickel button keys, 2 sets of reeds, 2 stops Each $6 80

No. 534 Top 7½x12½, mahogany moulding, ebonized top, 2 double bellows leatherette covered and with nickel protectors patent self acting spring clasps colored metal trimmings, 10 nickel button keys, 4 sets of reeds 4 wooden stops . . . . . Each $11 60

No. 493 Top 6x11½, mahogany frames, keys and panels finely open fret-work, fine leatherette bellows with 14 folds and brass protectors, open keyboard, colored metal trimmings and leather clasps 19 pearl keys, 8 pearl bass keys, 4 sets of reeds . . Each $16 00

Repeating, Calendar and Miscellaneous Imported Watches

Illustrations show exact size. Quality guaranteed. PRICES EACH.

Guinand's Reliable Minute Repeater.

12 size (17 ligne), thin model, 14k gold, heavy plain bassine or E. T. case, 28 ruby jewel nickel movement, Breguet hairspring, patent regulator, exposed pallets, very finely finished; strikes hours, quarters and minutes

No. 9682 Open Face, 14k gold case.. $280.00
No. 9683 Hunting, 14k gold case..... 304.00

Guinand nameless second quality minute repeating watch, same size 14k gold case and movement as described above

No. 9684 Open Face, 14k gold case. .$210.50

Nameless ¼ Hour Repeater.

16 size, open face, bassine case, 15 jewel nickel lever movement, Breguet hairspring, pendant set. Strikes hours and quarters.

No. 9685 Gun metal case.....$34.00
No. 9686 Silver case 28.50
No. 9687 14k solid gold, plain case . 87.50

Roskopf Panoramic Watch.

Open Face, jointed case, gilt crown and bow, 8 jewel lever movement, gilt or silver dial, revolving circle of photos (pictures of heads and figures) instead of second hand

No. 9689 Gun metal case.....$5.00

Same watch without panoramic pictures, plain white dial, fancy gilt hands

No. 9700 Gun metal case. $3.50
No. 9701 Nickel case 3.30

When watch is fully wound, the slipping of the main spring is a warning to this effect.

New Thin Model Gun Metal and Nickel Watches.

14 size, Open Face, thin model, bassine, gun metal case, gilt antique bow and crown, jointed with inside cap, ¾ plate, 7 jewel lever movement patent double regulator, pendant set, the most reliable watch made for the money.

This watch can be sold and guaranteed by the best jewelers.

No. 9688 With gilt metal dial, black figures and steel fleur-de-lis hands $8.80
Same watch with plain white imitation double sunk dial steel spade hands .. . 8.30
No. 9689 Same watch in nickel case and plain white imitation double sunk dial, steel spade hands 8.00

Mother of Pearl Full Dress Watch.

Open Face, 12 size, mother of pearl case, thin model, solid back, gold filled trimmings 15 jewel fine nickel lever movement, cream dial, gold dots, a watch for full dress wear

No. 9697 .....$21.10
Same style and quality watch in ladies' size
No. 9698 Ladies' 0 size.....$21.10

Alarm Watch.

11 jewel, lever movement, one winding winds both alarm and watch. A date reminder for pocket or desk.

No. 9701½ Gun metal case $13.20
No. 9702 Nickel case..... . [illegible]

Self-Acting Calendar Watch.

Gives day, date, month and all changes of the moon. Makes all changes at midnight. Reliable in action and good timekeeper.

No. 9691 Nickel case, 7 jeweled lever movement .....$ 7.50
No. 9692 Gun metal case, 7 jeweled lever movement..... 7.50
No. 9693 Gun metal case, 11 jewel lever movement 9.40
No. 9694 Silver case, 11 jewel lever movement 12.30

Continental Calendar Watch.

Fine nickel, 15 jeweled lever movement. Fully guaranteed. Best in the market.

No. 9695 With gun metal case. . . $15.10
No. 9696 Fine silver case.... ..... 17.70

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Novelty Pendulette Watch. Gun Metal.

Gun metal, Open Face, plain case, stem wind and set, lever movement decorations on dial are highly colored making the dial very attractive, the pendulum which is visible is constantly in motion.

No. 9703 Complete.. . . ..$5.00

When watch is fully wound, the slipping of the main spring is a warning to this effect.

Imported Thin Model Complete Watches

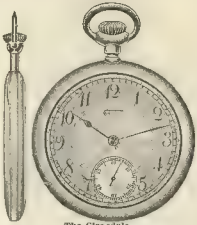
Illustrations show exact size. PRICES EACH.

THE LANCET, VERY THIN WATCH.

12 size, Open Face, Bassine American Case, snap bezel, jointed back, invisible joints, fitted with the **Lancet**, bridge model, lever movement, expansion balance, Breguet hairspring, exposed winding wheels, pendant set. A very reliable watch.

No. 9704 11 jewels, 10 year gold filled case, flush joints, E. T., or polished. .$19.00
No. 9705 11 jewels, 25 year gold filled case, flush joints, E. T., or polished . . 24.00
No. 9706 15 jewels, 10 year gold filled case, flush joints, E. T., or polished. . 22.50
No. 9707 15 jewels, 25 year gold filled case, flush joints E. T., or polished..... 27.70
No. 9708 17 jewels, 25 year gold filled case, flush joints, E. T., or polished..... 37.50
No. 9710 15 jewels, 14k solid gold case, flush joints, plain polished..... 51.50
No. 9711 17 jewels, 14k solid gold case, flush joints, plain polished 61.50
No. 9712 15 jewels, plain Gun Metal case, silver or gold metallic dial.. ... 19.30
No. 9713 15 jewels, sterling silver Niello finish case, silver or gold metallic dial 28.60

We can furnish the **Lancet** with white enamel or gold and silver metallic dials at same prices



The Clovedale.

New thin model, Open Face, 12 size (17 ligne), pendant set watch, fine nickel 15 jewel movement, with Breguet hairspring, exposed pallets and winding wheels, silver or gold dials as desired. A very reliable watch.

No. 9714 In gun metal, bassine case $15.50
No. 9715 In sterling silver, bassine case..... 17.50
No. 9716 In gold filled (25 year), bassine case 27.00
No. 9717 In 14k solid gold, bassine case..... 60.00

The Patria, Gold Filled.

12 size, open face, very thin model, 15 jewel, nickel, pendant set, lever movement (very reliable) fitted in 25 year Bristol case, snap bezel, flush jointed back, with ball bearing bow

No. 9718 Plain polished $25.00

Same movement fitted in 25 year guaranteed Crescent case with French antique bow.

No. 9719 Plain polished.....$30.00

12 Size, Gray Metal.

12 size, open face, 7 jewel nickel three-quarter plate lever movement, exposed winding wheels, pendant set, [illegible] with gold dots and fancy gilt hands, fitted in thin model white metal case, French gray finish, [illegible] assorted designs [illegible] very desirable watch and guaranteed a good timekeeper

No. 9720 Complete.. .... $9.00

The Patria, Gray Metal.

Open face, 14 size, thin model, Argenta French gray metal case, snap bezel, jointed back with inside cap, fitted complete with 7 jewel nickel lever movement. Exposed winding wheels, pendant set, white enamel dial.

No. 9721 Complete. $8.00

Same watch with silver or gilt metal dial 50 cents extra.

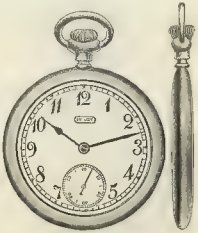
Gold Filled New Thin Model.

Open Face, 14 size, screw back and bezel, American gold filled case, E. T. or plain polished, warranted 20 years, nickel, 7 jeweled, lever movement, ¾ plate, exposed winding wheels, fancy damaskeened pendant setting.

No. 9722 With gilt or silver metal dial $12.50
No. 9724 With porcelain embossed dial 12.50
No. 9725 With porcelain white dial... 12.00

15 year snap bezel jointed back case.

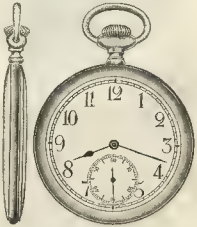
No. 9726 Silver or gilt metal dial $11.20
No. 9727 Plain white enamel dial..... 10.50



Gun Metal and Nickel. New Thin Model.

Open face, 14 size, thin model, snap back and bezel case, nickel, 7 jeweled lever movement, ¾ plate, exposed winding wheels, fancy damaskeened, pendant setting.

No 9728 Gun metal case, white dial ..$6.80
No 9729 Gun metal case, silver dial 6.90
No. 9730 Gun metal case, gilt dial 6.90
No. 9732 Solid nickel case, jointed, white dial 6.30



French Gray Metal. Very Thin Model.

Open face, 14 size, very thin model French gray metal, jointed case, wears better than silver, **nickel, 7 jewel lever movement,** ¾ plate, exposed winding wheels, fancy damaskeened, pendant setting.

No 9733 With gilt metal dial $8.00
No 9734 With silver metal dial . 8.00
No. 9735 Same watch, with sterling silver jointed case, inside caps plain or engraved, white dial 8.50

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Don't you want the easiest riding the strongest, most powerful and the best built machine you can get?

Do you know **why** the many exclusive features of the **CURTISS** make it just **that** machine?

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CURTISS engines are roller bearing throughout. Hardened and ground steel rollers running between two hardened and ground steel bushings. Easy running, positively indestructible, no trouble from heating or running dry. (Compare them with bronze.)

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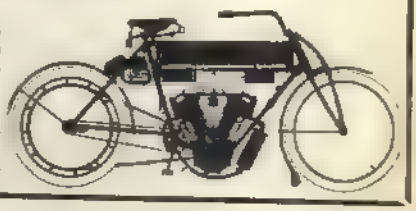
Highest Awards, both classes, 1908 F. A. M. Endurance Run.

Two new models for 1909, 3½ and 7 H. P. Don't fail to learn about them. We're now closing up territory. If you want to handle the best, better write to-day.



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HAMMONDSPORT :: NEW YORK

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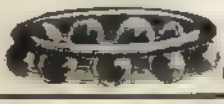

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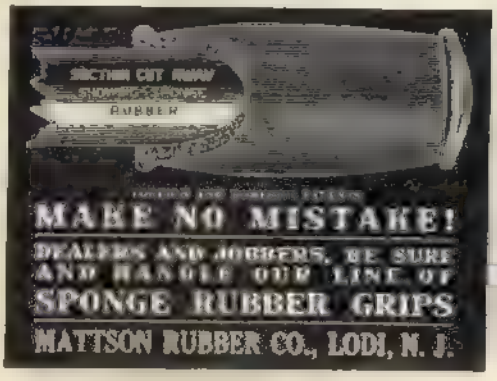
BERLIN S. O. 36, GERMANY



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8 H. P. Accumulators and Spring Forks,	$350.00

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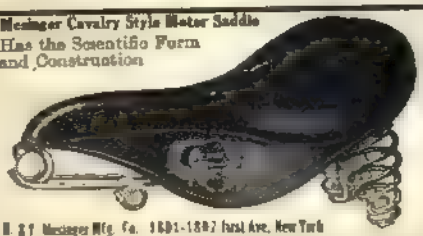
Has the Scientific Form and Construction



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with BALL BEARING MOTORS have during the past season by their consistent performance gained for themselves an enviable reputation and universal recognition, not in one particular locality, but wherever introduced. The list of winnings and a table performances has grown so rapidly that space will not permit enumerating all here, but copies of same can be had and all other details regarding exclusive points of construction, operation, etc., by request to

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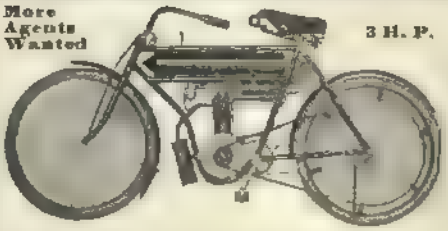

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A NEW WRINKLE IN REPAIR HANGERS
Adjustable Caps. Write Us.
THE A. & J. MFG. CO.
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ALL IDEAL GOODS BEAR THE "IDEAL" NAME

Ideal and Acme Handle Bars, Stems, and Saddle Posts, for Bicycles and Motorcycles

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IDEAL PLATING COMPANY, Incorporated - - - MARLBORO, MASSACHUSETTS

MESINGER CAVALRY STYLE MOTOR SADDLE

Has the Scientific Form and Construction

Hinged joint on front springs prevents breaking and gives more life to spring.

THREE SIZES
No. 1, Small. No. 2, Medium
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The top is raised in front and back sufficient to prevent the rider from slipping forward or backward—is curled hair padded and has the form of a horseback saddle.

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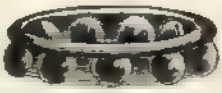

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Model B.,	2¼ H. P.,	- -	$190.00
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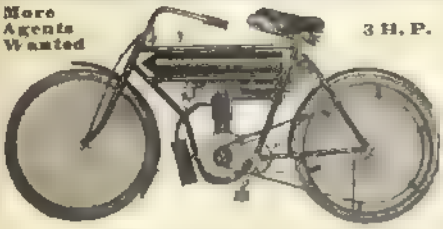

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One Mile 46 2-5 seconds
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The Sartus Ball Retainer
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BEST ANTI-FRICTION
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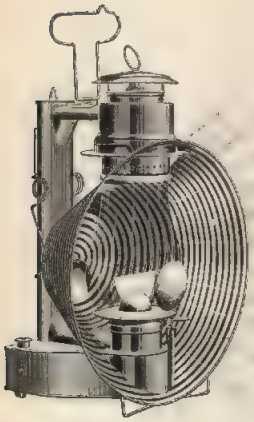
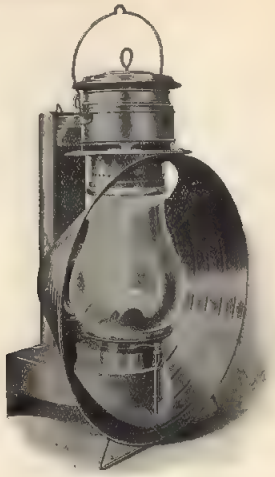


No. 20.



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Per dozen

No. 20. Blue Japanned, No 0 Cold Blast Bull's Eye Globe, Reflector 12 in in Diameter, 7 in Deep, No. 2 Burner, 1 in. Wick $30.00

No. 40. Mammoth Search Lights, Green Japanned, Reflector 16 in. in Diameter, 8½ in Deep, No 9 Burner, 1½ in. Wick 72.00

No. 20, six; No. 40, one in a case.

DRIVING LAMPS.

GASOLINE TORCHES.

Per dozen

Diamond Driving Lamps, the Interior is Highly Finished with Silver Nickel the Back Reflector is Heavily Silver Plated; Double Convex Lens, Finely Ground and Polished, Absolutely Wind Proof, Does Not Smoke and Will Not Jar Out. Can be Attached to Right or Left Side of Dash, Suitable for the Finest Carriage $42.00

Gasoline Torches, Japanned, 4 Qt. Reservoirs 24 00

Half dozen in a case

HAND, PANEL AND RIP SAWS.

MONITOR.

Fine Cast Steel, Straight Back, Polished Blade, Patent Ground, Even Temper, 24-inch Rule Etched on the 26 inch Saws. Beechwood Handle, Polished Edges, Three Improved Saw Screws.

Inches,	26
Monitor, Bright Blade, Per dozen,	$10 00

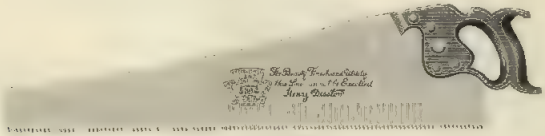
Half dozen in a box.

FARMERS' PET.

Fine Cast Steel, Straight Back, Narrow Polished Blade, Even Temper. Beechwood Handle, Polished Edges, with Three Saw Screws.

Inches,	18	20	22	24	26	28 Rip
Farmers' Pet, Bright Blade, Per dozen,	$5 50	5 90	6 35	6 90	7 40	9 00

Half dozen in a box.



DISSTON'S.

Disston & Sons' Skew Back Saw, Apple Handle, Polished Edge, Five Improved Screws.

Inches,	18	20	22	24	26	26 Rip	28 Rip
No. **D 8**, Per dozen,	$16 00	17 50	19 50	21 00	22 00	22 00	25 00

MITRE BOX SAWS.

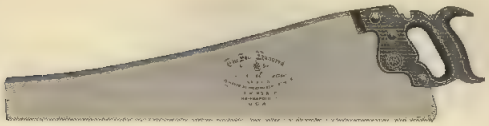
Cast Steel Mitre Box Saws, Hand Filed and Set, Ready for Use. Warranted. Toothed Edge, 2 inches shorter than the full length. Five inches under back.

Inches,	20	22	24	26
No. **8**, Per dozen,	$25 00	27 50	31 00	33 50

MORLEY-MURPHY HARDWARE COMPANY, GREEN BAY, WIS.

MORLEY-MURPHY HARDWARE COMPANY, GREEN BAY, WIS.

HAND, PANEL AND RIP SAWS.



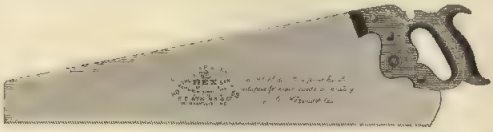
THE ELITE SAW.

The Finest and Most Expensive Hand Saw Ever Made.

Silver Steel, Skew Back, Mirror Finish, Rosewood Handles, Perfection Pattern, Polished, with four Silver Plated Screws.

No. **400**, 26 inches, - Per dozen, $48 00

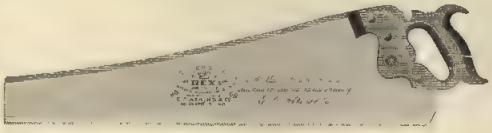
One only in a box.



REX.

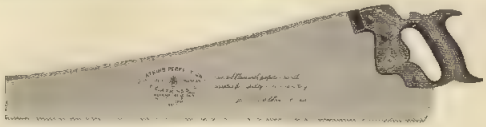
Straight Back, Silver Steel, Mirror Finish, Perfection Carved Apple Handle, Polished Edge.

Inches,	26	26 Rip
No. **69**, Per dozen,	26 50	26 50



Skew-Back, Silver Steel, Mirror Finish, Perfection Carved Apple Handle, Polished Edge.

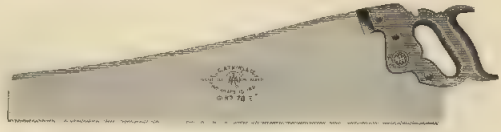
Inches,	26	26 Rip
No. **68**, Per dozen,	27 50	27 50



PERFECTION.

Damaskeened, Skew Back, Silver Steel, Carved and Polished Apple Handle. With the Atkins Perfection Handle.
A high grade saw, made expressly for those who know a good tool and cannot afford to use a poor one.

Inches,	18	20	22	24	26	26 Rip	28 Rip
No. **53**, Per dozen,	$18 50	20 50	22 50	24 50	25 50	25 50	$28 75

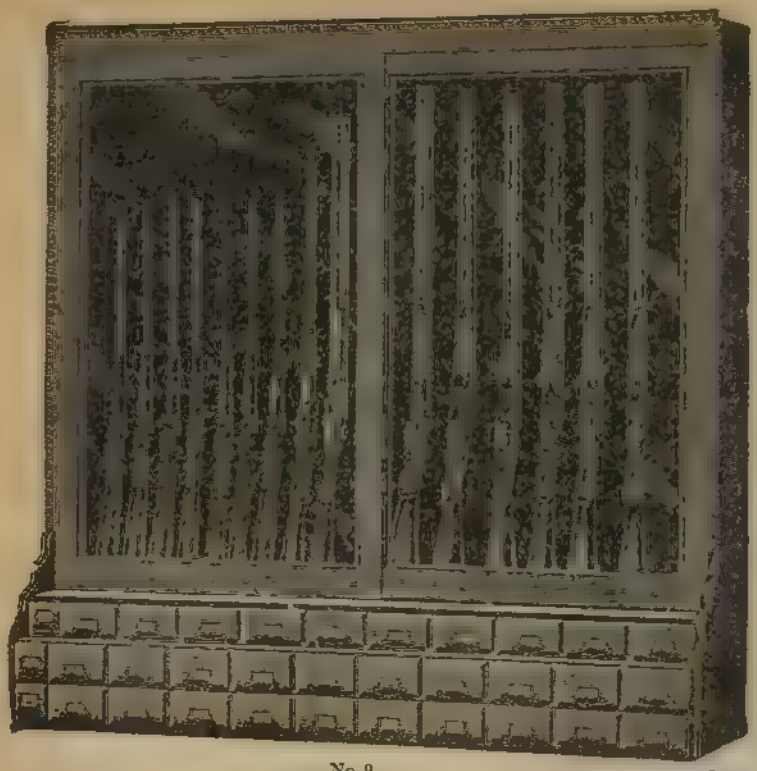


ATKINS, SPECIAL STEEL.

Next to our Silver Steel Saws, the Finest Saws Made in the World.
Special Steel, Apple Handle, Polished Edge, Blade Highly Finished, Skew Back.

Inches - -	18	20	22	24	26	26 Rip	28 Rip
No. **70**, Per dozen,	15 00	16 50	18 00	19 50	21 00	25 00	29 00

One-third dozen in a box.



No. 9.

‡HARDWARE CABINETS.

Riverside Gun Show Cases.

Each

‡No. 9—GUN SHOW CASES; Height 63 inches; Length 64 inches; Depth at Bottom 20 inches; Depth at Top 12 inches; 33 Drawers for Ammunition and Gun Supplies; Sliding Glass Doors; Holds 20 Guns; Complete with Set of Blank Labels.....$45.00

Shipping Weight 200 lbs.

Each

‡No. 110—GUN SHOW CASE; Height 57 inches; Length 56 inches; Depth 22 inches, Outside Measurements; Oak Frame; Double Thick French Glass; Sliding Glass Doors; Painted Black Inside; Capacity 10 Guns, 9 Rifles and 8 Air Rifles $18.00

Shipping Weight 225 lbs.

No. 110.

‡Goods marked thus (‡) are not carried in stock and can only be furnished by shipment direct from factory.

See Page 1572 for General Description.

MORLEY-MURPHY HARDWARE COMPANY, GREEN BAY, WIS

IRON MACHINE SCREWS.

Round Head.

Flat Head.

Nos.,	4	6	8	10	12	14	16	18	20	24
3-16 Inch Long, Per gross,	$0 25	29	....	....	....	....	...	. .	...	....
1-4 " " "	25	29	35	43	...	....	....	. .	....	....
5-16 " " "	27	31	38	46	....	....	....	...	...	....
3-8 " " "	27	31	38	46	59	74	95	....	..	....
7-16 " " "	29	33	41	49	59	74	95	....	....	....
1-2 " " "	29	33	41	49	59	74	95	1 10	1 25	1 70
9-16 " " "	33	36	46	54	66	81	1 00	1 15	1 35	1 90
5-8 " " "	33	36	46	54	66	81	1 00	1 15	1 35	1 90
3-4 " " "	37	42	52	63	74	88	1 10	1 30	1 55	2 00
7-8 " " "	....	48	60	72	85	1 00	1 20	1 40	1 65	2 20
1 " " "	....	55	70	85	97	1 15	1 35	1 55	1 80	2 55
1⅛ " " "	...	...	85	1 05	1 25	1 45	1 65	1 85	2 10	3 00
1¼ " " "	...	....	85	1 05	1 25	1 45	1 65	1 85	2 10	3 00
1⅜ " " "	....	....	....	1 35	1 60	1 80	2 00	2 20	2 50	3 60
1½ " " "	....	....	....	1 35	1 60	1 80	2 00	2 20	2 50	3 60
1¾ " " "	....	.. .	....	...	1 80	2 05	2 40	2 55	2 90	4 10
2 " " "	....	....	....	....	....	2 30	2 75	2 90	3 35	4 65
Threads to the Inch,	32	32	32	24	24	20	18	18	16	16

One gross in a box.

SCREW AND BOLT CASES.

Screw Cases.

SCREW.

No. 1, Screw Case 72 Drawers, Height 33 inches, Width 21 inches, Each, $18 75
" 2, " " 80 " " 36 " " 21 " " 21 50
" 3, " " 88 " " 39 " " 24 " " 23 00
" 4, " " 96 " " 42 " " 24 " " 25 50

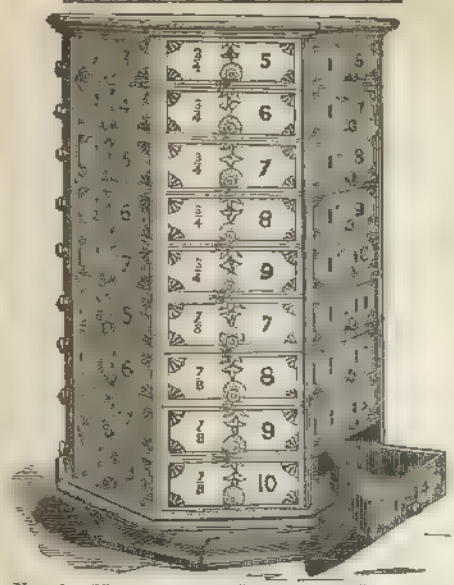
BOLT.

No. 1, Bolt Case 98 Drawers, Height 46 inches, Width 26 inches, Each, $37 00
" 2, " " 104 " " 50 " " 26 " " 41 00

The Drawers are all provided with stops to prevent their removal from the Case. Each Drawer holds a package of Bolts or Screws of the size and number indicated on the front of the Drawer.

Shipped direct from Factory.

SCREW CASES.



AMERICAN.

Octagon Shape; Made of Selected White Pine. Varnished; Metal Drawers, with Wood Fronts; White Porcelain Knob on each Drawer; Top part revolves on Base

The Drawers are all provided with Stops to prevent their removal from the Case. Each Drawer holds a Package of Bolts or Screws of the Size and Number indicated on the front of the Drawer.

Each

No. 1—72 DRAWERS; Height 34 inches, Width 21 inches, Depth 21 inches; Weight each about 80 lbs. $25.00

No. 2—80 DRAWERS; Height 36 inches, Width 21 inches, Depth 21 inches; Weight each about 85 lbs. 30.00

No. 3—88 DRAWERS, Height 40 inches, Width 25 inches, Depth 25 inches; Weight each about 90 lbs. 35.00

No. 4—96 DRAWERS; Height 42 inches, Width 25 inches, Depth 25 inches; Weight each about 90 lbs. 40.00

No. 1 SCREW CASE Contains Drawers labeled for following sizes of Screws:

[illegible] in x [illegible] 4, 5, 6, 7.
[illegible] in x [illegible] 6, 7, 8.
[illegible]-in x [illegible] 6, 7, 8.
[illegible] in x [illegible] 9, 10.
[illegible] in x 6, 7, 8, 9, 10, 11, 12, 13, 14.
1¼-in x [illegible] 8, 9, 10, 11, 12, 13, 14, 15.
1½-in. x 8, 9, 10, 11, 12, 13, [illegible]
1¾-in x [illegible] 10, 11, 12, 13, 14, [illegible] 16.
[illegible] x 12, 13, 14, 15, 16.
[illegible] x 16, 18, 20, 22.

No. 2 SCREW CASE Contains Drawers labeled for following sizes of Screws

[illegible] in x 2, 3, 4.
[illegible]-in x [illegible] 4, 5, 6, 7.
[illegible] x [illegible] 6, 7, 8.
[illegible]-in x 4, 5, 6, 7, 8, 9, 10.
[illegible] in x 6, 7, 8, 9, 10, 11.
1 [illegible]-in x 6, [illegible] 8, 9, 10, 11, 12, 13, 14.
1¼-in x 7, 8, 9, 10, 11, 12, 13, 14, 15.
[illegible] x 8, 9, 10, 11, 12, 13, [illegible]
[illegible] 1[illegible] 16.
1¾-in x [illegible] 11, 12, 13, 14, 15, 16, 17.
2 -in. x 10, 11, 12, 13, 14, 15, 16, 17, 18.
2½-in x 12, 13, 14, 15, 16, 17, 18.
[illegible] x 16, 18, 20, 22.

No. 3 SCREW CASE Contains Drawers labeled for following sizes of Screws

[illegible] x 1 [illegible]
[illegible] in x 2, 3, 4.
½-in x 3, 4, 5, 6, 7.
[illegible] in x 4, 6, 7, 8, 9.
[illegible] in x 4, 5, 6, 7, 8, 9, 10.
[illegible] in x 6, [illegible] 8, 9, 10, 11, 12.
1 -in x 6, [illegible] 8, 9, 10, 11, 12, 13, 14, 15.
1¼-in x 7, 8, 9, 10, 11, 12, 13, 14, 15, 16.
[illegible] x 8, 9, 10, 11, 12, 13, [illegible] 16.
[illegible] x 10, 11, 12, 13, 14, [illegible] 16, 17, 18.
2 -in. x 12, 13, 14, 15, 16, 17, 18.
[illegible] x 16, 18, 20, 22.

No. 4 SCREW CASE Contains Drawers labeled for following sizes of Screws

¼ in x 1 [illegible]
⅜ in x 2, 3, 4, 5, 6.
½ in x 3, 4, 5, 6, 7, 8.
⅝ in x 4, 6, 7, 8, 9, 10, 11.
¾ in. x 4, 5, 6, 7, 8, 9, 10, 11, 12.
⅞-in. x 6, 7, 8, 9, 10, 11, 12.
1 -in. x 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16.
1¼-in. x 7, 8, 9, 10, 11, 12, 13, 14, 15.
1½-in. x 8, 9, 10, 11, 12, 13, 14, 15, 16.
1¾-in x 9, 10, 11, 12, 13, 14, 15, 16, 17.
2 -in x 10, 11, 12, 13, 14, 15, 16, 17, 18.
2½-in x 12, 13, 14, 15, 16.
3 -in. x 16, 18, 20, 22.
3½-in x 18, 18, 20.

BOLT CASES.

Each

No. 1—98 DRAWERS; Height of Base 15 inches; Height over all 60 inches. Size of Base 31x31 inches; Size of Top 30x30 inches; Weight each about 250 lbs. $50.00

No. 2—104 DRAWERS; Height of Base 20 inches; Height over all 65 inches; Size of Base 31x31 inches; Size of Top 30x30 inches; Weight each about 300 lbs. 55.00

No. 1 BOLT CASE Contains Drawers labeled for following sizes of Bolts:

Tire Bolts

[illegible] in x [illegible] 1½, 1¾, [illegible] 2¼, [illegible] ¾, 3.
[illegible] x 1¾, 1½, 1¾, 2, [illegible] 3.
[illegible] in x 2 [illegible] 2½.

Carriage Bolts.

¼-in. x 1¼, [illegible] 1¾, [illegible] ¾, 7, 3¼, 3½, 3¾, 4, 4¼, 4½, 4¾.
[illegible] x 1¼, [illegible] 1¾, 2, [illegible] ½, 2¾, 3, 3¼, 3½, 3¾, 4, [illegible] 4½, 4¾, 5, 5¼, 5½, 6.
[illegible] x [illegible] 2¼, 2½, 2¾, 3, 3¼, 3½, 3¾, 4, 4¼, 4½, 5, 5½, 6.
[illegible] x 2, 2½, 3, 3½, 4, 4½, 5, 5½, 6, 6½, 7, 8, 9, 10, 11, 12.

No. 2 BOLT CASE Contains Drawers labeled for following sizes of Bolts:

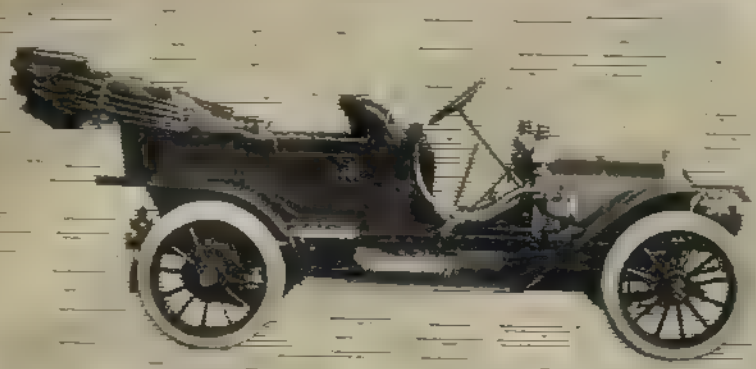
Tire Bolts

[illegible] x 1¼, 1½, 1¾, [illegible] ¼, ½, 1¼.
¼-in x [illegible] 1½, 1¾, [illegible] ¾, 3.
[illegible] x 2 [illegible] 2½.

Carriage Bolts.

¼-in. x 1¼, 1½, 1¾, 2, 2¼, 2½, 2¾, 3, 3¼, 3½, 3¾, 4, 4¼, 4½, 4¾, 5.
5/16-in. x 1¼, 1½, 1¾, 2, 2¼, 2½, 2¾, 3, 3¼, 3½, 3¾, 4, 4¼, 4½, 4¾, 5, 5¼, 5½, 6.
⅜-in. x 2, 2¼, 2½, [illegible] 3, 3¼, 3½, 3¾, 4, 4¼, 4½, 5, 6.
7/16-in. x 2, 2½, 3, 3½, 4, 4½, 5, 5½, 6, 6½, 7, 7½, 8, 8½, 9, 9½, 10.
½ in x 2, 2½, 3, 3½, 4, 4½, 5, 5½, 6, 6½, 7, 7½, 8, 8½, 9, 9½, 10, 11, 12.

One in a Crate



HAYNES

The Haynes for 1909.

45 H. P. $3000

The Car They Copy

WHEN a car is only a copy of existing rivals, it is usually backed by inferior genius. The car to get is the one that is copied—the pioneer.

The Haynes is the oldest American car. Our model A was built in 1893. We gave to the world the large wheels, aluminum parts, side-entrance body, make-and-break ignition and a host of minor features which are now universal.

The genius of Elwood Haynes who blazed the road of successful invention in the past is still with us, and the Haynes car is still ahead of them all in the superior development of various vital parts. The Haynes clutch, the ratchet gears, the roller pinion and sprocket direct drive, the two fly-wheels, the water-cooled brakes are all distinctive, and we expect that all automobiledom will copy them when the patents expire. But till then the Haynes is the car for the man who wants high power (45 H. P.) with direct drive, no vibration, ease of control and practically unending, unfailing serviceability.

AGENTS WANTED. If you have been agent for a maker that blew away in the late financial flurry, you will appreciate the opportunity to line up with a company that has survived the vicissitudes of fifteen years. Good territories this year for the right men.

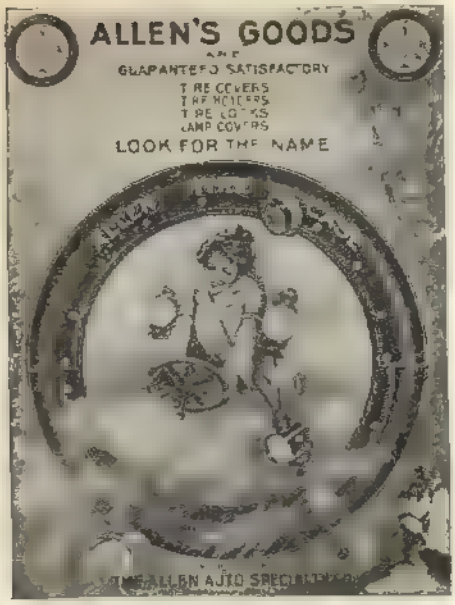
SPECIFICATIONS OF THE HAYNES FOR 1909

Motor—4 cylinder, 4¼ x 5.
Water Cooled, with very large water jacket.
Drive—Shaft drive, with Haynes roller-pinion and sprocket at the rear axle, which minimizes friction and side thrust and eliminates noise entirely.
Clutch—Haynes patent contracting steel band upon bronze drum.
Carburetor—Latest type Schebler, water jacketed.
Lubrication—Gear driven McCord oiler.
Ignition—Bosch Magneto also battery system with single coil and separate set of plugs.
Bearing—Roller bearings used throughout.
Tires—36 x 4 all around.
Transmission—Selective type, three speeds forward and reverse. Ratchet device makes gear stripping impossible.
Wheel Base—112 inches. Tread—56 inches.
Body—Touring car for five or seven, or toy tonneau, $3,000. Runabout or Hiker type, $2,900.
The Hiker type consists of two bucket seats with large gasoline tank on rear. Equipment includes Prest-O-Lite tank, baggage rack and tire holders.

HAYNES AUTOMOBILE COMPANY, Kokomo, Indiana

Oldest Automobile Manufacturers in America. MEMBERS A. L. A. M.

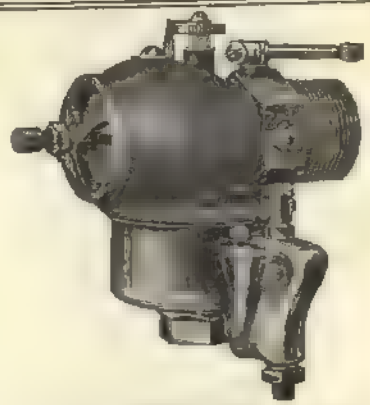
NEW YORK, 1715 BROADWAY CHICAGO, 1702 MICHIGAN AVENUE



LIMERICK CONTEST WINNERS

1st. H. A. King, 1474 Third Ave., New York, N. Y.
2d. Daniel Doncaster, Automobile Club of America, N. Y.
3rd. Rhodes Bros., 734 S. Main St., Philipsburg, N. J.
4th. [illegible] Carr, Gaffney, S. C.
5th. A. N. Brabeck, Cartown, Ga.
6th. W. B. [illegible] Pearce, Newton, Mass.
7th. Zelmond Mills, Almena, Kansas.
8th. S. C. Stearns, Detroit, Mich.

HEITGER CARBURETER



MODEL A, '08

Small, neat, light and efficient, nothing better at any price.

Being adopted by Automobile, Motorcycle and Marine Engine Manufacturers.

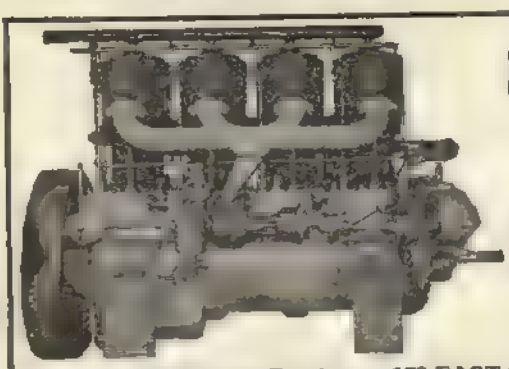
Satisfaction guaranteed or money refunded.

Horizontal or vertical outlet.

We also make a special carbureter for 3-port, 2-cycle engines.

HEITGER CARBURETER CO. 203 WEST SOUTH STREET INDIANAPOLIS, IND.

CATALOG ON REQUEST



SCHLOSSER MFG. CO.
MOTORS

For Trucks, Automobiles, Boats.

SPECIFICATIONS: Four Separate cylinders. Aluminum crank case. Five Bearing crank shaft. Bosch Magneto. Special Automatic Carburetor. Hydraulic Governor. Automatic oiling. Bronze water and oil pumps direct connected.

Office and Factory: 152 EAST 126th STREET, NEW YORK.

Aluminum, Bronze, Manganese Bronze

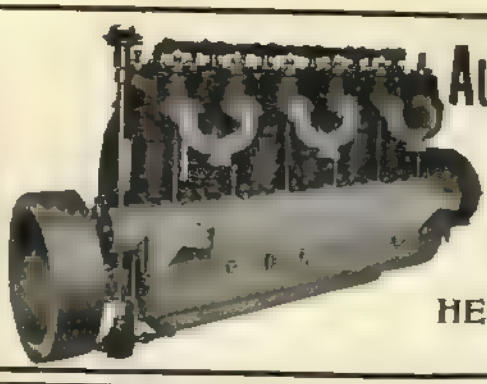
CASTINGS

"SUPERIOR" BABBITT
"PLATA" WHITE BRASS

25 YEARS' EXPERIENCE

ROCHESTER New York

CLUM & ATKINSON



Automobile and Truck MOTORS

16-18 H. P.
24-30 H. P.
45-55 H. P.

HERSCHELL-SPILLMAN CO.
W. Tonawanda, N. Y.

VULCANIZERS

The kind rubber factories use for all kinds of Automobile tire and tube repairing and retreading also special devices such as large kettle vulcanizers, tread rollers, power wrapping machines segment recovering cores air bags and adjustable sectional vulcanizers, steam jacketed. This vulcanizer will repair 82 sizes and makes of casings. Tires sold and repaired reasonably.

CHAS. E. MILLER, Anderson, Ind.

WE SAVE YOU FROM 10% TO 50% ON AUTOMOBILE SUPPLIES
CATALOG FREE
Mathew Strauss,
707 Main St., Buffalo, N. Y.

Soda and Potash Kettles

For quickly, thoroughly and economically cleansing all oil grease and chips from newly made machine parts preparatory to being case hardened, plated or assembled, also handy for cleansing parts of machinery of all descriptions in repair shops or garages, which are being repaired or overhauled. More economical and safer to use than gasoline for cleansing. Heated by Bunsen gas burner or blue flame kerosene burner. Better than steam jacketed kettles because they are portable and require no expensive steam traps, special piping or drainage. One size only. Ten gallons capacity. Low cost as compared with steam kettles. In stock ready for prompt shipment. Send for descriptive circular K today.

THE GRAY & PRIOR MACHINE CO.
90 Suffield Street Hartford, Conn.

HANDLE.
Also Tire Tool and Hammer
To lower, simply work handle above the level or turn it over and work below the level.

No. 50, 51 No. 52, 53

The 1908 PEERLESS JACK IMPROVED

UNITED STATES AND FOREIGN PATENTS GRANTED

Made of Malleable Iron. Is strong, compact, light, rapid, cheap and by far the most popular Automobile Jack on the market. The leverage is much easier than on our former makes of these jacks. The handle is 15 inches long, and shaped to make one of the best tire tools on the market. It can also be used as a hammer. The handle socket is curved enabling the jack to be worked under any car, and it is not necessary to get under the car to operate it. Works at any angle, can be used for pushing as well as lifting. It is automatic, working the handle below the level raises working the handle above the level lowers, or turn handle over and work below level. Nothing easier; nothing simpler. Specify Peerless Jacks for your cars.

OLIVER MFG. CO.
202 S. Desplaines St., Chicago

HEITGER Model C, 1909 CARBURETER

Has mechanical, as well as automatic control of gasoline feed, operated by throttle, by a simple, reliable, and durable construction.

No cams, or delicate levers to adjust, or get out of order. Improved float adjustment, float valve, and air valve. Has gauze strainer at gasoline connection. New spray nozzle, making starting easy, and low gasoline consumption.

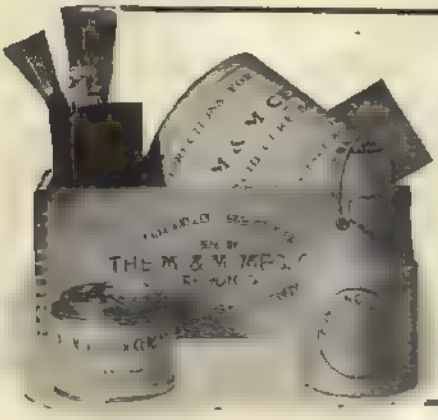
Specially adapted to all types, two cycle engines.

Agents Wanted Everywhere

HEITGER CARBURETER CO.

203 West South Street, INDIANAPOLIS, IND.

Special types for Buick & Ford Runabouts



THE VERIEST TYRO

in automobiling can make a quick perfect repair of bursted or torn tires and inner casings with an

M. & M. Tire Repair Outfit

No heat required as the Cement and Acid Cure Solution amalgamates patch and torn parts into one solid piece of rubber that cannot be separated without tearing.

Keep one in your repair kit and be prepared for the inevitable.

For sale by all Dealers and Jobbers.

THE M. & M. MFG. CO. Akron, O.

Speed Flexibility

is limited in even the best gear systems. Absolute flexibility is possible only in the friction drive. Simpler, lighter and more economical than gears, and much more efficient in transmitting power.

ROCKWOOD PAPER FRICTIONS

are the standard for friction drives. Our treatise, **"Friction Transmission"** gives valuable facts and formulas for the designer.

Sent free on request.

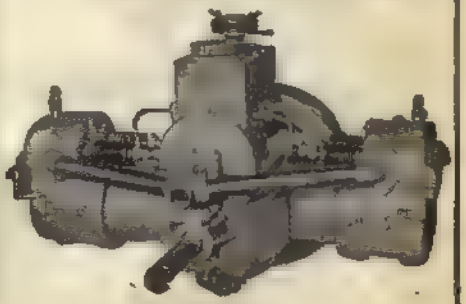
State occupation and firm connected with.

The Rockwood Mfg. Co.
1911 English Avenue
Indianapolis, Ind., U. S. A.

FOR SALE

Motors

5 in. x 4 in.-Two Cylinder Opposed. 18 H. P.



WE ALSO MAKE

4½ in. x 4 in. 2 Cylinder Opposed
5½ in. x 4½ in. 2 " "
6 in. x 4½ in. 2 " "

Our new shop will take care of your Orders.

DAVIS MFG. CO.

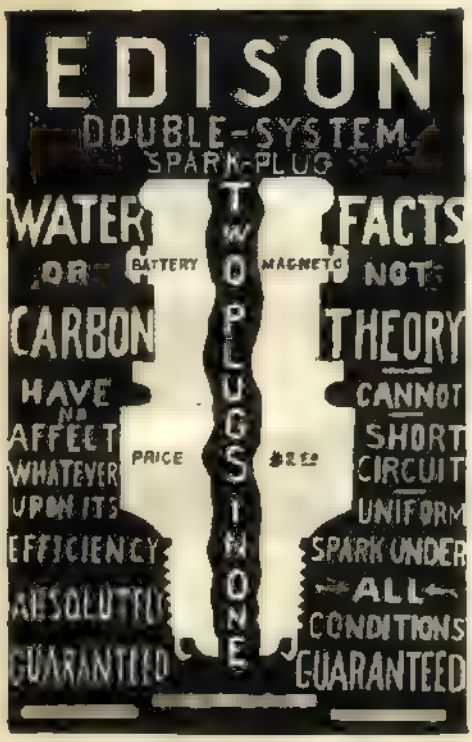
MILWAUKEE, WIS

Your dealer can afford to give you the BEST Headlight; insist on having it.

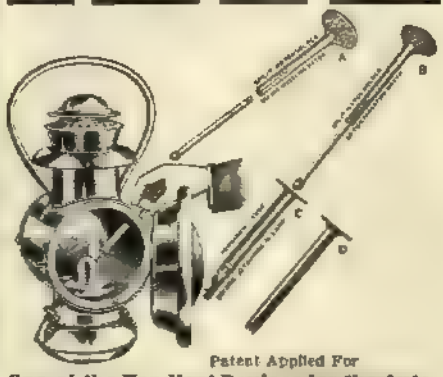
The ATLAS

with its superior ventilation and patent spring catch for the door, is the best Lamp made in the World. Take no other.

NEW YORK AUTO LAMP COMPANY
585 Washington Street, New York



The Fowler Lamp Lighter



Patent Applied For

One of the Handiest Devices for the Automobilist ever placed on the market. If your car is not electrically lighted, you know all about the annoyance of trying to light your lamps in a gale of wind, or when your hands are benumbed with cold. With the **Fowler Lamp Lighter** you simply push the match-holder down through the permanent tube toward the wick, and the prongs or blades ignite the match lighting your lamps instantly. **Works equally well on Gas or Oil Lamps.** Write for further particulars and prices.

FOWLER LAMP & MFG. CO.
2333 Wabash Ave. - - - - CHICAGO

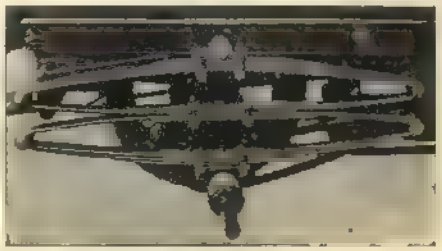
If the SPRING

on your car subjects you to shocks and jolts, it is not the proper spring.

A car equipped with our springs receives no shocks, and the occupants of the car receive no jolts. Our spring is a shock absorber in itself.

It receives the shocks and the jolts, and your car is protected, its mechanism is saved and your comfort is assured.

And don't forget your tires. Because of the cushioning effect of our springs, fifty per cent. of the wear and tear on the tires is saved.



Burnet Compound Spring Co., Inc., 738 Broad St., Newark, N. J.

Salesrooms: 1611 Broadway, New York City

LANTERNS.

SIDE LIGHTS.

No. 2, Galvanized, Plain Glass.

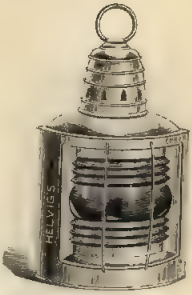
Width of Glass 5½ inches, Height of Glass 5½ inches, Height of Frame 7 inches, Extreme Height 11¼ inches, Width of Base 7 inches.

Plain Glass.

No. **2**, Galvanized, - - - Per pair, $5 00
" **2**, Polished Brass, - - " 9 00

Fresnal Glass.

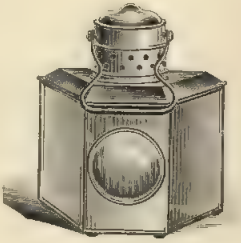
No. **7**, Galvanized, Glass 6x6 inches, - Per pair, $6 75
" **7**, Polished Brass, - - " 9 75



No. 7, Brass. Fresnal Glass.

COMBINATION LIGHTS.

FOR LAUNCHES.



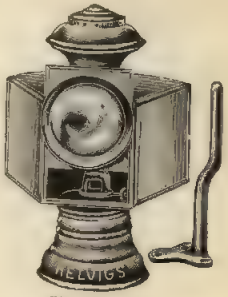
Chicago.

Size of Glass, 4¼x3¾ inches.

Chicago, Galvanized, - Each, $7 50
Chicago, Polished Brass, " 9 00

Size of Glass 4x3½ inches, with Standard.

Philadelphia, Polished Brass, Each, $12 00



Philadelphia.

NAVY LANTERN OR ANCHOR LIGHTS.

GALVANIZED.

Navy.

Plain Glass, with Bull's Eye.

Diameter of Globe 5 inches, Height of Globe 6½ inches, Height of Lantern 11 inches, Diameter of Base, 5 inches, Per dozen, $30 00

ENGINEERS' LANTERNS.

POLISHED BRASS.

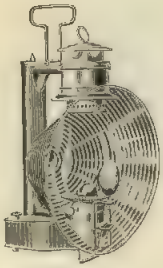
No. **19**, Plain Glass, 9 inches in Height, - - Per dozen, $36 00
" **20**, With Bull's Eye, - - - " 54 00

No. 20.

LAMPS.

No. 3.
Globe Hanging.

No. 9.
Globe Street.



SEARCHLIGHT.

Finished in Blue Japan and Plain Tin. No. 2 Burner. One inch Wick. No. 0 Tubular Bull's Eye Globe. Reflector, 12 inches Diameter, 7 inches Deep.

No. **20**, - Per dozen, $30 00

TUBULAR MILL AND STREET.

Can be Regulated to Burn a Certain Number of Hours.

No. **3**, Globe Tubular Hanging Lamp, with No. 3, 1½-inch Wick, Automatic Extinguisher, - - Each, $6 50
" **9**, Globe Tubular Street Lamp, with No. 3, 1½-inch Wick, Automatic Extinguisher, - - Each, 6 50

One in a box.

HANGING LAMPS.

MAMMOTH.

No. 3 Chimney and No. 3 Wick. Gives a more Brilliant and Larger Light than any Lamp in the market. Wick is regulated from below.
Seamless Brass Wick Tube.

Mammoth Brass Lamp, complete with Harp, 20 inch Shade and Chimney, Each, $5 00

Mammoth.

HARP.

Harp Lamp, with Glass Fount and Tin Reflector Shade,
Per dozen, $8 65

Harp.

MORLEY-MURPHY HARDWARE COMPANY, GREEN BAY, WIS.

HERBRAND WRENCHES

Strictly first-class, drop-forged from high-grade steel, both jaws tempered

Automobile

	Each	Doz.
9-inch, black, opens 2½ inches	$0.[illegible]	$1.[illegible]
9-inch, nickeled, opens 2½ inches	.70	7.[illegible]
11-inch, black, opens 2½ inches	.95	[illegible]

Machinists'

14-inch, black, opens 2½ inches	$1.65	$16.80

Heavy Machinists'

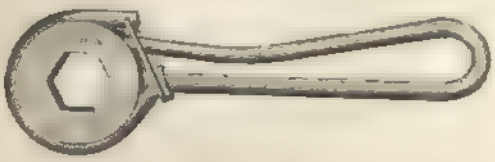
18-inch, black, opens 3 inches	$2.60	$26.00

THE "W. & B." AUTO WRENCH

This wrench has head and bar drop-forged in one piece from select steel. The jaws are case-hardened, and the entire wrench is ground, polished and highly finished. Has thin jaws to get into close places. The lightest, strongest and most durable wrench of its kind on the market.

	Each	Doz.
Length, 10 inches	$1.00	$12.00

WALDEN RATCHET WRENCH



Square

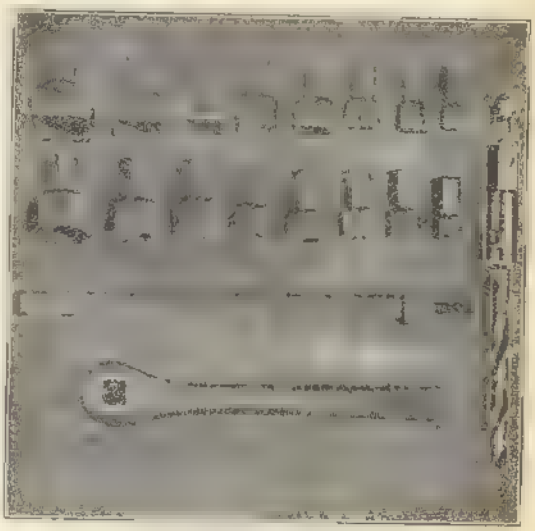
Openings, [illegible], [illegible], [illegible] and ½	each,	$0.75
" "	"	1.00

Hexagon

Openings, ½, [illegible] and ⅝	each,	$0.75
" ¾	"	1.00
" ⅞	"	2.00

THE CHAMPION RATCHET WRENCH

Set No. 1



Price, Set Complete, $5.00

Fig. 1. Square sockets for nuts from ¼ inch to ¾ inch.
Fig. 2. Hexagon sockets for nuts from ¼ inch [illegible]
Fig. 3. Extension of cold drawn steel tubing.
Fig. 4. Ratchet-wrench
Fig. 5. Drill attachment.

Made from the finest grade of malleable iron with all parts broached to accurately fit together. Sockets fit all sizes of nuts, bolts, set screws, lag screws, etc. All parts are held together by a friction ball, which prevents sockets, etc., from dropping out when in use. Each set packed in a strong wood box, having separate compartments to avoid the possibility of loss through misplacement.

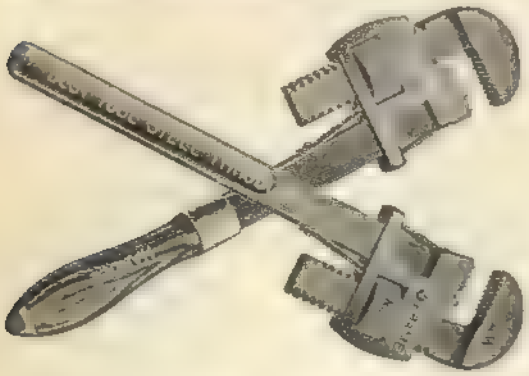
Drill attachment makes a perfect working ratchet with socket taking standard, round or square shank drills

BILLINGS BICYCLE WRENCH

Without question, the highest grade and most satisfactory adjustable bicycle and pocket wrench on the market.

Weight, Ounces	Opens, Inches	Thickness of Jaw Inches	Per Dozen, Nickeled	Per Dozen Black
5½	1⅜	¼	$7.00	$6.00

STILLSON ADJUSTABLE PIPE WRENCHES



Length Open	Takes Pipe up to	Each	Extra Parts, Price Each: Jaw	Frame	Steel Handle	Nut	Wood Handle Grip
6	⅛	$2.00	$0.75	$0.35	$0.95	$0.11	$0.16
8	¾	2.00	.75	.35	.95	.11	.16
10	1	2.25	.80	.40	1.10	.14	.18
14	1½	3.00	1.00	.50	1.45	.17	.25
18	2	4.00	1.33	.55	2.10	.22	.28
24	2½	6.00	2.10	.80	3.20	.35	.....
36	3½	12.00	4.75	1.30	6.40	.55	
48	4½	18.00	7.25	1.90	9.25	.95	

Sizes 6 to 18 inch inclusive, have wood handle grips. Large sizes are all steel.

All sizes up to 24 inch inclusive, are packed in wooden boxes of ½ doz. each. 36 and 48 inch, packed in 1-6 doz. boxes.

TRIMO ADJUSTABLE PIPE WRENCHES

(All Steel)

Length Inches	Takes Pipe Inches	Price Each	Weight Each Lbs	Length Open	Takes Pipe Inches	Price Each	Weight Each Lbs
4	½	$2.00	1	18	2	$4.80	5
8	¾	2.00	1¼	24	2½	6.80	7
10	1	2.25	1½	36	3	12.00	16
14	1½	3.00	3¼	48	4	18.00	24

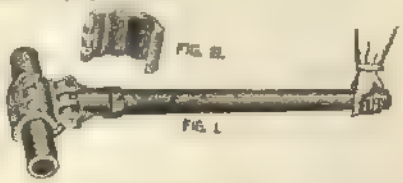
EXTRA PARTS, PRICE EACH

Length Inches	Jaw	Nut	Steel Jaw	Frame Springs	Frame Pins	Jaw Pins
6	$0.67	$0.20	$0.25	$0.25	$0.03	$0.03
8	.67	.20	.25	.25	.03	.03
10	.77	.27	.33	.33	.03	.03
14	1.00	.35	.50	.45	.03	.03
18	1.33	.42	.55	.55	.04	.04
24	2.00	.50	.65	.65	.04	.04
36	4.00	.65	1.00	.75	.04	.04
48	6.00	.80	1.25	1.00	.04	.04

All sizes to 24 inch inclusive packed in wooden boxes of ½ doz. 36 and 48 inch in 1-6 doz. boxes.

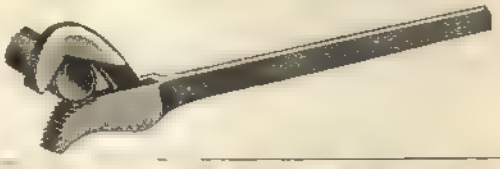
PARMELEE'S GIRDLE PIPE WRENCHES

Quick motion and sure catch; works like a ratchet. Does not crush or mar the pipe. For brass or plated pipe it has no equal. Can be used on threaded bolts and nipples without the slightest injury to them.



No.	Size, inches	For Pipe, inches	Price Each, Complete	Extra Stocks Each	Extra Girths Each
1	10	¾, ⅞, ¾, 1	$5.00	$2.25	$0.75
2½	20	¾, 1, 1¼, 1½, 2	7.50	2.50	1.25
3½	25	1½, 2, 2½, 3	7.50	3.00	1.25

THE "V. AND B." PIPE WRENCHES



No.	Takes Pipe Inches	Takes Pipe Inches	Weight Each Lbs	Price Each	Extra Jaws, Each	Extra Handles, Each
10	⅛ to 1	10	1¼	$2.25	$0.75	$1.50
14	⅛ to 1½	14	2¼	3.00	1.00	2.00
18	⅛ to 2	18	4½	4.00	1.33	2.67
24	⅛ to 2½	24	7	6.00	2.00	4.00

Nos. 10 and 14 packed 6 in a box. Nos. 18 and 24 packed loose.

WESTCOTT'S ADJUSTABLE PIPE WRENCHES

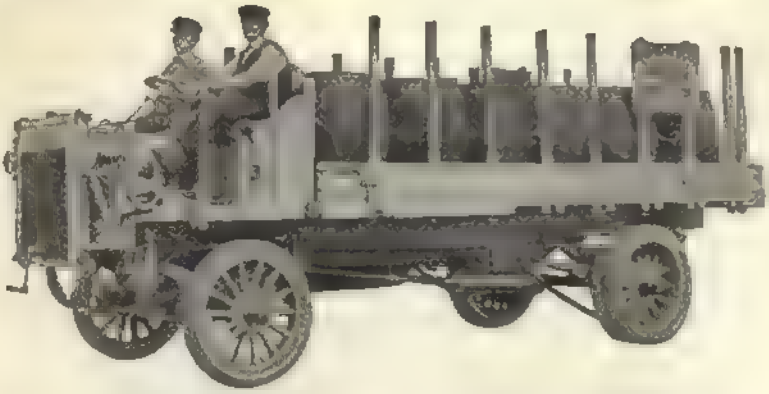
Length, inches	Takes Pipe, inches	Price Each	Price per Dozen
6	⅛ to ½	$1.[illegible]	$[illegible]
8	⅛ to ¾	[illegible]	[illegible]
10	⅛ to 1	1.80	[illegible]
12	⅛ to 1¼	2.40	[illegible]
14	⅛ to 1½	3.00	[illegible]

DUDLY COMBINATION WRENCHES

Drop Forged Steel

Size	Holds Pipe	Holds Nut	Price Each
7	⅛ to ½	1¼	$1.25
9	⅛ to 1	1	1.50
12	⅛ to 1	1½	1.80

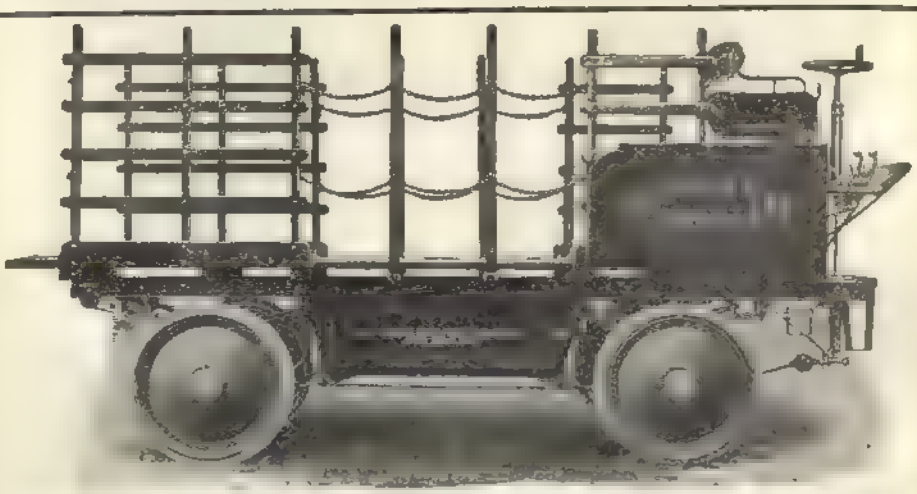
5 TON HEWITT TRUCK



CUSTOMERS ALL SATISFIED

1000-Pound Light Delivery. Simplest car Made. Best Record

HEWITT MOTOR CO., 10 E. 31st St., New York City



THE "COUPLE-GEAR" GASOLINE - ELECTRIC TRUCK

Motors Contained in the wheels. Power applied at both sides of the wheel directly to the wheel rim. Single reduction of 25 to 1. Transmission losses practically eliminated. Equipped with "Storage Battery" or with engine and generator.

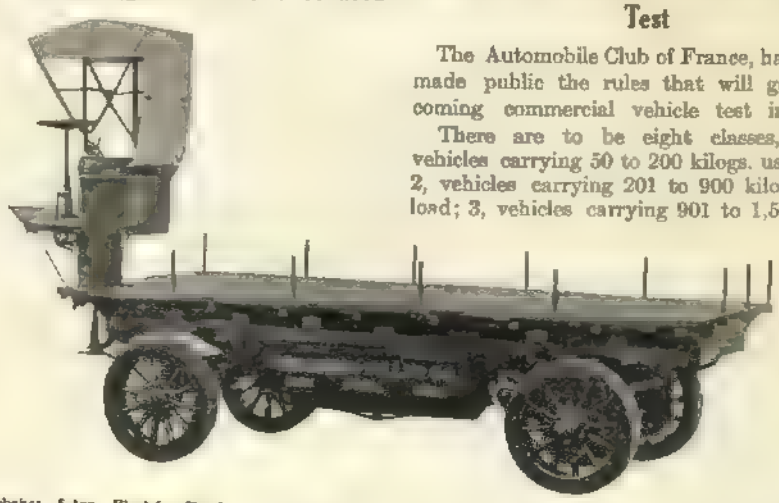
FRONT-WHEEL DRIVE AND FRONT-WHEEL STEER.
FOUR-WHEEL DRIVE AND FOUR-WHEEL STEER.

Capacities One, Two, Three and 5 tons. Write for catalogue and list of users. Responsible agents wanted.

COUPLE-GEAR FREIGHT-WHEEL COMPANY, 560 Buchanan Street, GRAND RAPIDS, MICHIGAN

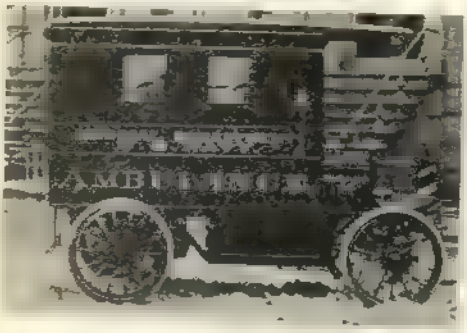
Two Recent Studebaker Productions

The accompanying cuts show a truck and an ambulance built by the Studebaker Automobile Company of South Bend, Indiana. The truck has been delivered to the Bourne-Fuller Company, of Cleveland, Ohio, together with a 3½ ton truck, to be used for the transportation of iron and steel. Both trucks although of different capacity are of exactly the same design and employ the chassis specifications of regular Studebaker electric 3½ and 5 ton trucks.



Studebaker 5 ton Electric Truck recently delivered to the Bourne-Fuller Company of Cleveland, Ohio.

The interesting feature of these trucks is that they were probably the first electric trucks built with special reference to the convenient handling of steel and iron bars, sheets, and strips. The driver's seat is moved to the extreme left of the vehicle and in this way extra provision is made for the overhanging in front of extra lengths of iron or steel, and this construction allows for the convenient handling of much longer pieces than can ordinarily be handled by horse-drawn vehicles. The tires are of wood and the platform bed is partially lined with sheet steel to prevent wear.



Studebaker Electric Ambulances used by the Medical Department of the U. S. Navy at Washington, D. C.

The ambulance consists of a specially designed body placed upon a regular Studebaker 1500 pound capacity electric chassis. It has a speed of 12 miles per hour and a radius of 40 miles on one battery charge.

Rules for French Commercial Vehicle Test

The Automobile Club of France, has recently made public the rules that will govern the coming commercial vehicle test in France.

There are to be eight classes, viz: 1, vehicles carrying 50 to 200 kilogs. useful load; 2, vehicles carrying 201 to 900 kilogs. useful load; 3, vehicles carrying 901 to 1,500 kilogs useful load; 4, vehicles carrying 1,501 to 2,000 kilogs. useful load; 5, vehicles carrying 2,001 to 3,000 kilogs. useful load; 6, vehicles carrying over 3,000 kilogs. useful load; 7, public service vehicles, 6 to 10 passengers; 8, public service c les overveh10 passengers. No vehicle must weigh more, fully laden, than 4 tons per axle, the weight being arrived at by dividing the total weight by the number of axles.

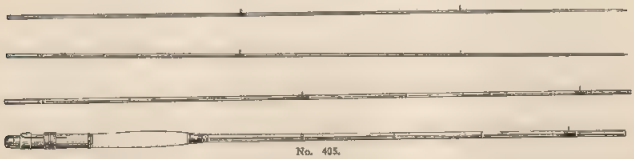
The trial will comprise about 25 stages. Each stage will be divided into a number of sections. The average maximum speed, which must not under any conditions be exceeded in any single section, is fixed at 25 k.p.h. for all classes.

The final standing will be determined by the formula: T x C — P x D; in which T represents time in hours; C the fuel consumption through the trial in francs; P the useful load carried, to which will be added the weight of the vehicle body in kilogs. D the distance covered in kiloms.

Jerome J. Pattens, the well-known promoter of Butte, Mont., is a great believer in the automobile for desert and western country, and has placed an order with the Jackson Automobile Company for three special Jackson Tourabouts for use in and about Butte for the purpose of transporting his customers about when showing them the various properties under his control. All will be equipped with special bodies made under Mr. Patten's special design and arranged for the carrying of complete outfits.

FISHING RODS.

SPLIT BAMBOO FLY RODS.



No. 405.

Per dozen

No. 405. **Three Piece, Extra Tip, Split Bamboo Fly Rod,** Nickel Plated Mountings, Solid Metal Reel Seat, Silk Winding, Cork Grip, in Wood Form and Cloth Bag, Assorted Lengths, 9 to 10 ft. $19.50

No. 410. **Three Piece, Split Bamboo Fly Rod,** Nickeled Mountings, Solid Metal Reel Seat, Silk Winding, Cork Grip, in Cloth Bag, 9 to 10 ft. 15.00

HEXAGONAL SPLIT BAMBOO FLY RODS.

Per dozen

No. 415. **Three Piece, Extra Tip, Fly Rod,** made from good quality Cane, Nickel Plated Mountings, Solid Reel Seat, Cork Grasp, Silk Wound Rings and Keepers, very Heavily and Handsomely Wound with Red Silk, Assorted Lengths, 9 to 10 ft., put up in Stained Form and Cloth Bag. $28.25

Per dozen

No. 420. **Three Piece, Extra Tip, Split Bamboo Fly Rod,** Nickel Plated Mountings, Solid Metal Reel Seat below hand, Cork Grip, Silk Wound Rings and Keepers, whipped at intervals with Red and Green Silk, in Silesia Covered Wood Form and Bag, Assorted Lengths, 8½ to 10 ft. $35.50

Per dozen

No. 425. **Three Piece, Extra Tip, Split Bamboo Fly Rod,** Full Nickel Plated Mountings, Solid Metal Reel Seat below hand, Cork Grip, Welt Ferrules, Silk Wound Rings and Keepers, Closely Wound with Clusters of Black, Green and Red Silk, in Flannel Covered Wood Form and Bag, Assorted Lengths, 9 to 10 ft. $36.00

Per dozen

No. 430. **Three Piece, Extra Tip, Split Bamboo Fly Rod,** Full Nickel Plated Mountings, Solid Metal Reel Seat below hand, Cork Grip, Welt Ferrules, Silk Wound Rings and Keepers, Closely Wound with Clusters of Black, Green and Red Silk, in Flannel Covered Wood Form and Bag, Assorted Lengths, 9 to 10 ft. $45.00

FISHING RODS.

HEXAGONAL SPLIT BAMBOO RODS.

Per dozen

No. 240. **Three Piece, Extra Tip, Bait Rod,** made from Selected Calcutta Cane, Short Swell Butt, Full Nickel Plated Mountings, Welted and Serrated Ferrules, Cork Grasp, Silk Wound Guides, very closely wound with best quality Green and Black Silk, a handsome and durable Rod, Length 7 to 9 ft. $94.50

Per dozen

No. 245. **Three Piece, Extra Tip, Bait Rod,** made of best Calcutta Cane, Full Nickel Mountings, Aluminum Reel Seat, Cork or Cane Wound Grasp, Silk Wound Guides, very closely wound with Red and Black Silk, Length 8 ft., put up in Flannel Covered Form and Canvas Bag..... $96.00

GREENHEART BAIT RODS.

Per dozen

No. 300. **Three Piece, Extra Tip, Bait Rod,** made from the best Selected Greenheart, Full German Silver Mountings, Solid Metal Reel Seat, Cork Grip, Silk Wound Rings and Keepers, very closely wound with Red, Yellow and Green Silk, Finely Finished, put up in Flannel Covered Wood Form and Bag, Assorted Lengths, 8 to 9 ft $102.00

LANCE WOOD RODS.

Per dozen

No. 305. **Three Piece, Extra Tip, Bait Rod,** made of the best Jamaica Lancewood, Full German Silver Mountings, Solid Metal Reel Seat, Welt Ferrules, Cork Grip, Silk Wound Rings and Keepers, very closely wound with Red and Black Silk, with Silk Winding Covering over end of Ferrule, in every particular the Rod is of the highest grade, put up in Velvet Covered Wood Form with Leather Ends and Canvas Bag, Assorted Lengths, 8 to 9 ft. .... . $ 90.00

Per dozen

No. 310. **Three Piece, Extra Tip, Bait Rod,** made from the Finest Selected Lancewood that can be procured, Full German Silver Mountings, Cane Wound Grip, Solid Reel Seat, Welted Ferrules, Handsomely Milled, Silk Wound Trumpet Guides, Three-ring Tops, wound at close intervals with best quality Red Silk, put up in Velvet Covered Forms, Leather Ends and Straps, Flannel Bag, Assorted Lengths, 8 to 9 ft.... ... . $108.00

1902 SIX YEARS OF SUCCESS 1908

HOLSMAN

1907 Sales Over $600,000.00

Six years of successful manufacturing have made the Holsman car the leader of all high wheel automobiles. That it is the leader is undisputed and in order to be entitled to this distinction the car must have features that will appeal to the purchaser.

Solid rubber tires and high wheels do away with the enormous tire trouble and expense, and insure comfortable riding and ability to travel bad roads.

Repairs Average Under $3.00 per Month

Air-cooled engine eliminates freezing water in winter and boiling water in summer, and also does away with complicated castings.

Cable drive makes it possible to apply the power near the periphery of the wheels where the leverage is greatest.

Official Gasoline Record, 29 Miles Per Gallon

Easy and simple control makes it more possible to avoid accidents.

There is an absence of complicated and expensive transmission gears, differential gears, friction clutches, friction bands and universal joints; all of which are subject to great wear and the source of continual expense.

Handsome new Catalogue mailed free on request.

Manufactured by

The Oldest and Largest Manufacturers of Carriage Automobiles

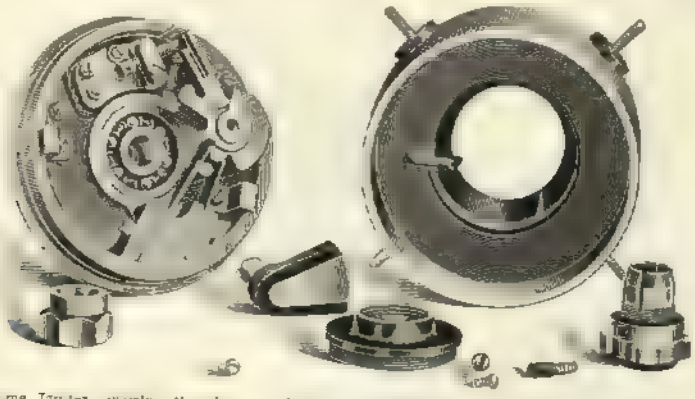
THE HOLSMAN AUTOMOBILE COMPANY

Room 453, Monadnock Block, CHICAGO, ILL., U. S. A.

The New Acme Igniter

The Pittsfield Spark Coil Company, Dalton, Mass., well known maker of ignition devices, has now added to its product the Acme Igniter, herewith illustrated. The device is a combined timer and distributor, the timer mechanism being the unique feature. It is mounted on ball bearings and will fit on the shaft in place of the usual timer. A single contact of extreme rapidity is made for each explosion, a single non-vibrating coil being used, thus saving batteries and making it possible to accurately time the spark in the cylinders. The small cam piece at the extreme right of the cut has as many cams as there are cylinders, these cams in succession operate the platinum contact points, one being on a spring and the other on a screw. These points are normally separated by a small space and each cam in turn partially rotates the piece carrying the spring and contact point. This rotation is resisted by two stiff springs, which forcibly return the piece to its original position, the momentum being sufficient to slightly bend the spring and throw the contact points momentarily together, followed by their instant separation due to the straightening of the spring carrying the movable contact point. This gives the smallest possible time of contact and is very economical of current. The making of the contact is entirely mechanical and can, therefore, be definitely timed. Furthermore, one setting gives absolutely the same timing in any number of cylinders, which is extremely important and is next to impossible to obtain with multiple vibrating coils. The time during which the contact points touch is practically the same at all engine speeds and is as positive at slow as at high speeds. The device is provided with a magnetic blow-out, which keeps the large platinum contact point cool and prevents arcing and welding together of the points. The tripping device which rests on the cams is pivoted so that it is impossible to get more than one contact should the engine run backward, thus eliminating to a large degree the danger of a back kick. An oil reservoir is provided in the upper part of the distributor case and automatically lubricates the mechanism. The movable distributor arm is shown at the centre of the cut and the terminals for the secondaries are, as usual, on the outside of the ring. These are well protected by vulcanite caps.

The 4-cylinder ignition outfit complete sells for $60 and the 6-cylinder for $70, which, considering the fact that four or six vibrating coils are dispensed with, is very reasonable.



The New Acme Igniter, showing the timer mechanism at the left and the distributor portion which fits over it at the right

"Amoco" Automobile Oils

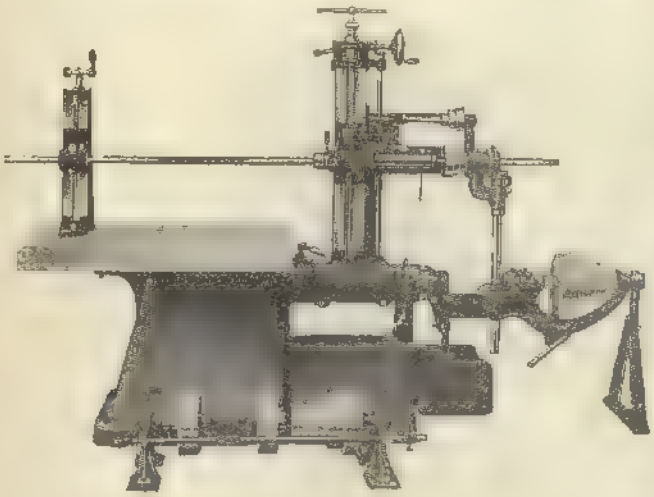
American Oil Co., 168-170 South Water street, Jackson, Mich., has a special line of oils and greases for automobile use, and makes a leader of its "Anti-Carbon" oil, which is of light body and pale color. "Anti-Carbon" oil is adapted to use on all makes of gasoline cars, both air and water-cooled. The company recommends that after a few days' use of "Anti-Carbon" oil, while engine is hot, a teacupful of wood alcohol be injected into each cylinder and allowed to stand over night. The next morning the engine should be speeded up for five or ten minutes, which will work out all carbon accumulations, after which, with continued use of "Anti-Carbon" oil it is claimed that further carbon troubles will not arise.

Four grades of "Amoco" oils are made for those who do not want a light oil like the "Anti-Carbon." The medium, heavy and extra heavy grades are for hot weather use and the light for cool or temperate weather. The "Amoco" line also includes oils for steam cars and for transmissions; also solid oil or cup grease, graphite grease and a soap for cleansing automobile bodies.

Charles M. Steele, a former Chicago newspaper man, has joined the E. R. Thomas Detroit Co. Mr. Steele will have charge of all publicity for the Thomas Detroit Co. and will assist Lee Counselman, the sales manager.

HORIZONTAL DRILLING MACHINE

This new machine has been designed particularly for work which, by reason of length, cannot be handled advantageously on either an upright or a radial drill. It is especially adapted for drilling in the ends of long pieces, as, for example, in the end of a column or shaft, [illegible] for any work within the range of its capacity which cannot be done at all, or with difficulty, on a vertical drilling machine. It is provided with a reversing friction countershaft, adapting the machine for tapping as well as drilling, and is capable of drilling up to one and one-half inches and tapping up to one and one-fourth inches.



Has power feed, hand worm feed, also quick return mechanism.

The spindle can be operated at any point through 145 degrees of a circle, having a radius of 24 inches. The table is 20 x 40 inches and has lateral T slots, so that work can be held either in jigs or bolted to the table. The spindle is 1 5/16 inches in diameter, and is fitted with No. 3 Morse taper, and has [illegible] of 10 inches. Required floor space, [illegible] x 12 inches.

The tight and loose pulleys on countershaft are 8½ x 2½ inches, and should be spinned 450 revolutions per minute.

Weight 1,800 Lbs.

Net without Back Gear and Power Feed	**Price, $430.00**
With Back Gear	**" 480.00**

BARNES No. 4½ AND No. 5 SCREW CUTTING LATHES

No. 4½ LATHE

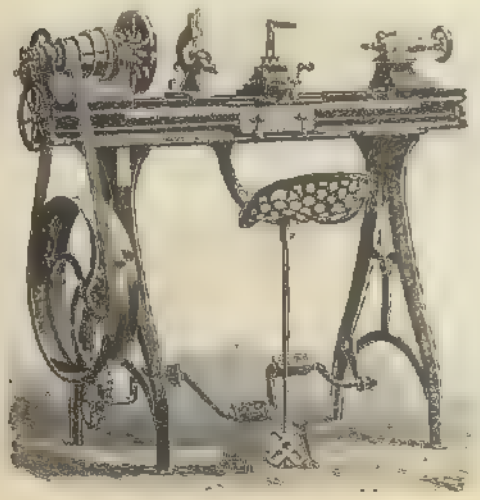
This lathe swings 9 inches diameter and takes work 25 inches long between centers, swinging 4½ inches over tool carriage.

It feeds right or left, and cuts screws right or left without change of gearing. The carriage is thoroughly gibbed for taking up [illegible].

The tail stock has side movement to adjust centers for turning tapers. The head stock has hollow spindle for rods up to ⅝ inch. All the gearing is cut from solid metal.

It is indexed for threads 5 to 40, and the change gears furnished can be combined for many other threads. The small pulley on [illegible] the large pulley 4½ inches.

The lathe weighs 270 lbs. Boxed ready for shipment 340 lbs. Price	$65.00
Compound rest, extra	8.00
Raising blocks [illegible] extra	10.00



No. 5 LATHE

This lathe [illegible] in the [illegible] model as No. 4½ lathe [illegible].

It swings [illegible] inches diameter, and takes work 34 inches long between centers, swinging 6⅝ inches over the tool carriage.

The head stock has a steel spindle with 15/32-inch hole through its entire length. The tail stock can be readily set at any desired point, or [illegible] together from the lathe bed, thus leaving it free for face plate or chuck work. It can also be set over for turning tapers. The tool carriage is a model of convenience and accuracy, and is gibbed to the bed. The tool carriage on our lathe swivels so that the tool can be set to work at any desired angle, and it also adapts the lathe for taper boring. It is indexed for threads 4 to 40, and the change gears furnished can be combined for many other threads. It weighs [illegible] lbs. Boxed ready for shipment it weighs 500 lbs. Price $90.00

Compound rest, extra 10.00

BARNES 9-INCH SCREW CUTTING LATHE

Furnished Either with Foot Power or Countershaft

The bed is of ample proportions and is well braced to give strength and rigidity. The head and tail stocks and carriage are fitted to the bed with V in front and with flat bearings in the rear, a construction which insures accuracy and allows great strength to the carriage.

The lathe is indexed for threads from 2 to 48 inclusive.

The equipment includes two face plates, center rest, two centers (hardened and ground), full set of change gears, necessary wrenches—and with the foot power lathe, driving belt.

Furnished with 3 ft. 9 inch bed, taking 24 inches between centers, and with 4 ft. 9 inch bed taking 36 inches between centers.

Countershaft style can be furnished with SHORT LEGS for BENCH USE.

Specifications

	Inches
Swing over bed	9 ⅛
Swing over carriage	7
Front bearing of head stock spindle	1 5/16 x 2 3/4
Back bearing of head stock spindle	1x2 3/16
Hole in spindle	13/32
Diameter of tail stock spindle	1 1/16
Diameter of spindle nose, 8 thread	1 1/8

	Inches
Cone pulley diameters	4½, 3⅝, 2¾
Ratio of back gearing, 7 to 1.	
Width of belt	1¼
Feed screw, ¾-inch diameter, 8 thread, Acme Standard.	
Slot in tool post takes 5/16 x ½-inch tool.	
Size of pulleys on countershaft	6½x2

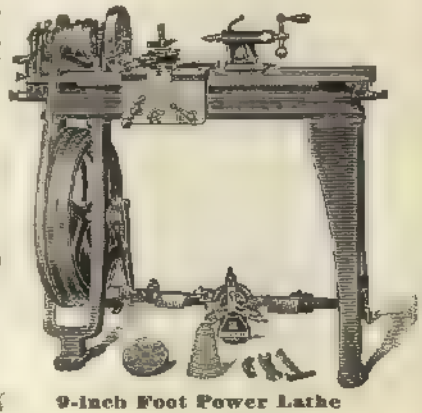
Speed of countershaft, 200 revolutions per minute.

	Net Lbs.	Crated. Lbs.	Boxed Lbs
Weight, with foot power	585	675	800
Weight, with countershaft	385	475	575

	Inches
Boxed for export, with foot power, two boxes	53x16¼x17¾ / 45x35x14½
Boxed for export, with countershaft, two boxes	53x16¼x17¾ / 35½x34½x11¾

Price, 24 inches between centers....$115.00
Price, 36 inches between centers.... 125.00

For longer beds, extra per foot, $6.00



9-inch Foot Power Lathe

BARNES 11-INCH SCREW CUTTING LATHES

Furnished Either with Foot Power or Countershaft

The head stock is very strong and is held by bolts screwed directly into the bed. The spindle bearings are large; boxes are of phosphor-bronze. The spindles both for head and tail stocks are made of high grade steel, and are accurately ground to fit. The carriage, which is fed by a splined screw, has broad bearings on the ways and is thoroughly gibbed. It has compound rest, the base being graduated.

Furnished with 5-ft. bed, taking 36 in. between centers, or with 6-ft. bed, taking 48 in. between centers.

Countershaft style can be furnished with SHORT LEGS for BENCH USE.

SPECIFICATIONS

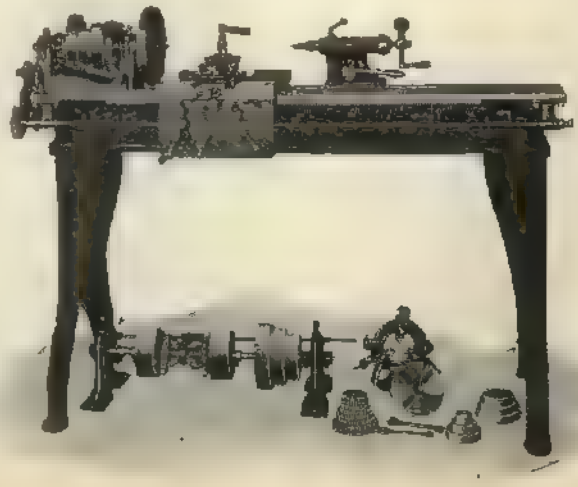
	Inches
Swing over bed	11¼
Swing over carriage	7
Front bearing of head stock spindle	1 7/16 x 3
Back bearing of head stock spindle	1⅛ x 2½
Hole in spindle	13/32
Diameter of tail stock spindle	1 5/16
Diameter of spindle nose, 7 thread	1¼
Cone pulley diameters	5½, 4⅛, 3¼
Ratio of back gearing, 7 to 1	
Width of belt	1½
Feed screw, ¾-inch diameter, 8 thread, Acme Standard.	
Slot in tool post takes ⅜ x ¼-inch tool.	
Size of pulleys on countershaft	6½ x 2
Speed of countershaft, 200 revolutions per minute.	

	Net Lbs	Crated Lbs.	Boxed Lbs
Weight, with foot power	820	900	1 115
" " countershaft	570	650	800

	Inches
Boxed for export, with foot power two boxes	68x17x18 / 58x33x13½
Boxed for export with countershaft, two boxes	68x17x18 / 48x33x12

Price 36 inches between centers, 5-foot bed $160.00
Price, 48 inches between centers, 6 foot bed.. 175.00

For longer beds, extra per foot, $8 50



11-Inch Power Lathe

CALL BELLS

No. 715 Nickel plated bell, bronze base, diameter of bell 2½ inches, 12 in package — Per doz $1 60

No. 760 Nickel plated bell, bronze base, diameter of bell 2½ inches, 6 in package ... Per doz $4 00

No. 7 All parts nickeled diameter of bell 3 inches — Per doz $8 00

No. 2 Silver-plated bell, diameter 2¾ inches, gold plated base ... Per doz $15 00

No. 720 Nickel plated bell, bronze base, diameter of bell 2½ inches, 6 in package — Per doz $2 00

No. 730 All nickel-plated diameter of bell 2¼ inches, 6 in package — Per doz $5 60

No. 1 Nickel-plated bell, diameter 2½ inches bronze base — Per doz $12 00

WITH ELECTRIC STRIKE

No. 752 Nickel-plated bell, electric strike, diameter of bell 2¼ inches, bronze base — Per doz $7 00

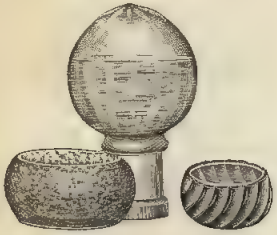
No. 775 All nickel plated, diameter of bell 2¼ inches, 12 in package — Per doz $2 80

No. 6 All parts nickeled, diameter of bell 2½ inches ... Per doz $7 50

No. 8 Nickel-plated diameter 2½ inches Per doz $12 00

No. 9 Silver-plated bell, electric strike diameter of bell 2¾ inches, black base ... Per doz. $23 00

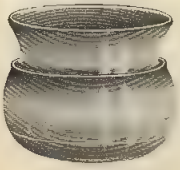
SPONGE CUPS



Fountain — No. 14

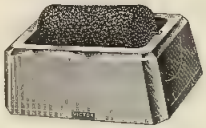
"Fountain" Will last a month without refilling perfectly automatic in its action, imparts a uniform moisture to the sponge, each in box ... $4 60

No.	Each 12 in package	Per doz
10	Heavy glass 3 inch, plain bottom	1 20
13	Twist design, diameter 3 inches	1 20



No. 14 "Never drip" glass, diameter 3 inches .. Per doz $1 50

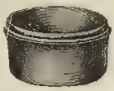
FINGER DAMPENERS



No. 4 Victor Pressed glass, felt roller, which will retain moisture for a long time, size of base 4x2½, each in box — Per doz $7 80

No. 5 Pressed glass, ground glass roller, size 4½x2, each in box — Per doz. $5 50

PIN CUPS

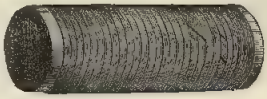


For pins, pens, buttons, etc., being so shaped as to make the cleaning of such articles therefrom very easy

No.		Per doz
200	Composition, assorted black and red polished, diameter 3 inches, 12 in package	$3 50

PINK TAPE—Imported

3 per cent extra discount allowed when full packages are ordered



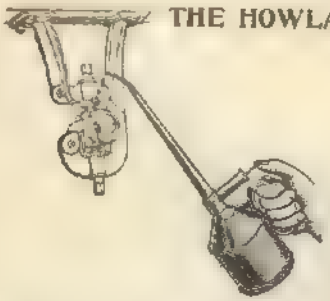
No.		Per doz spools
15	Spools of 72 yards, 3-16 inch wide, ½ dozen spools in package	$5 00
17	Spools of 72 yards, 4-16 inch wide, ½ dozen spools in package	5 40

ROYAL SLEEVE PROTECTOR

Black Canvas with Elastic

No.		Per doz
12	Small size	$4 00
13	Medium size	4 00
14	Large size	4 00

THE HOWLAND OILER



This oiler is especially designed for **Machinery Oiling, Overhead Bearings,** and all places not easily reached with a common oiler.

Will Deliver Oil in Any Position

No oil will escape from inverted can unless plunger is pressed

PRICE LIST WITH DETACHABLE SPOUTS, PER DOZEN

Capacity, pints	Length Spout, inches	Tin		Copper Plated		Brass	
		No.	Price	No.	Price	No.	Price
1/2	6	300	$15.25	400	$23.15	500	$26 80
1	9	302	17 50	402	26 75	502	30 50
1 1/2	12	[illegible]	[illegible]	403	[illegible]	503	[illegible]
2	16	[illegible]	[illegible]	[illegible]	[illegible]	505	[illegible]

Spouts longer than 16 inches and not over 30 inches [illegible] extra list

ZINC OILERS

Double Seamed Bottoms.

No.	Diameter inches	Spout inches	Per Dozen
00	2 1/16	1½	$12 00
0	2 1/4	1½	15 00
1	2 5/8	3	18 00
[illegible]	2 7/8	3	21 00
2	3 1/4	4	24 00
3	3 3/4	4	27 00
4	4 1/8	5	[illegible] 00
5	4 1/2	5	42 00
6	4 3/4	6	54 00

MALLEABLE IRON OILERS

No.	Diameter inches	Nozzle inches	Price per Dozen
1	4½	3	$3 60
2	3	3	3 00
3	3	3	3 10

NO. 600 SPRING BOTTOM MOWING MACHINE OILERS

Steel, Copper Plated

Has [illegible] spring steel bottom. The [illegible] at the bottom is strong around the [illegible] seamless from extra heavy [illegible] steel.

No.	Capacity	Diameter inches	Nozzle inches	Price per Dozen
600	[illegible]	[illegible]	5	$6 00

No. 26

INSPECTORS' AND LOCOMOTIVE STEEL TORCHES

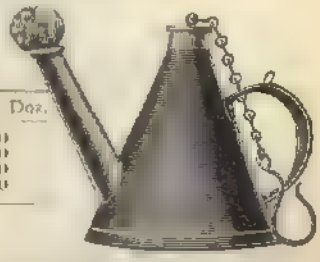
Bronzed or Copper Plated. Brass Cap and Tube

No. 27 and 28

No.	Capacity, pints	Diameter inches	Height, inches	Price per Dozen
26	1	2	15	$12 00
27	1½	4¼	[illegible]	[illegible]
28	2½	5¼	4½	15 00

SCREW TOP TORCH LAMPS

Heavy Sheet Steel. Will Stand Rough Usage



Capacity	Price per Doz.
[illegible] pint	$7 00
1	[illegible] 00
1 [illegible] pint	10 00
2	[illegible] 00

STEEL JACKET LAMPS

Bronzed or Copper Plated

No. 20

For Kerosene or Lard Oil

No. 22

No.	Capacity	Diameter inches	Price per Dozen
20	5 oz	3½	$ 6 00
20½	½ pint	3¾	9 00
21	1½ pints	4½	12 00
22	1 pint	3¾	9 00
23	1½ pints	4	12 00
24	1 quart	4¾	15 00

ACME MACHINISTS' OILERS

Copperized Steel

Capacity Pints	Diam., Inches	Nozzle, Inches	Extra Heavy	
			No.	Per Dozen
¼	2 15/16	3 1/16	745	$2.00
½	3¼	4 1/16	746	2.25
½	3¼	9	746A	2.60
1	4⅛	5⅛	747	2.65
1	4⅛	9	747A	3.00

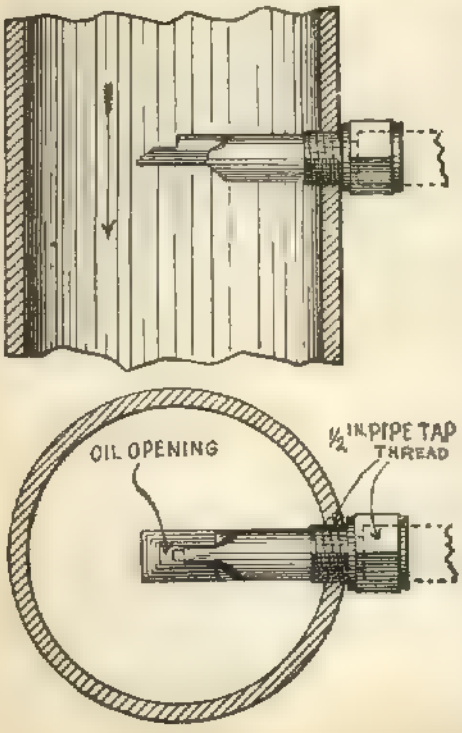
Nos. 746A and 747A have bent spouts.

WALL'S BRAZED STEEL BENCH OILERS

This oiler is made with a heavy steel body The bottom is of plain steel of the finest grade, brazed in, not soldered. The spout is of solid steel, bored out

No	Capacity, Pints	Diam Inches	Nozzle Inches	Per Dozen
204	⅛	3⅜	4	$5 [illegible]
304	⅓	3¾	4	6 [illegible]
306	½	3¾	6	6 50
309	½	3¾	9	7 00
404	¾	4⅛	4	7 00
406	¾	4⅛	6	7 50
409	¾	4⅛	9	8 00

THE PARKER CYLINDER OIL ATOMIZER



The "Parker" Cylinder Oil Atomizer will save its cost many times a year in the oil it saves, to say nothing of its saving in friction, repairs, packing and coal

Oil fed through this atomizer is atomized going with the steam to all parts and lubricating valves, valve seats, cylinder walls, piston rods, valve stems, etc. This uniform distribution of the oil insures thorough lubrication with from 15 to 50 per cent less oil than without it. It also reduces friction and saves coal and repairs.

With this atomizer, engines using either wet or dry steam are easily lubricated.

This method of lubrication reduces the amount of packing required, usually from 25 to 50 per cent., because it keeps the rods and stems continuously lubricated. Any kind of oil can be used with this atomizer and it works equally well with pump or lubricator.

The atomizer is screwed into the steam pipe, as shown, and the pump or lubricator screwed into it or piped to it

The "S" on the nut of the atomizer must face the coming steam

The operation of the atomizer is as follows —Oil fed to the atomizer passes through the oil opening into the steam pipe, as shown, where it is completely atomized by the steam as it flows over the atomizing edges about the oil opening

Price of atomizers, ½ inch to 6 inch pipe...$4.00 each
" " " 6 " " 12 " . " ... 5.00 "

In ordering give diameter of steam pipe and size of lubricator connections.

Hunting Knives and Daggers

STYLES EPECIALLY DESIGNED FOR STREET MEN AND KNIFE BOARD MEN—BIG FLASHES

No. 464. Hunting knife, one large 4-in spear blade, metal handle inlaid with tortoise shell Pressed bolster with guard corkscrew at back ring at end. Entire length 9¼ in. Dozen..... .95

No. 486. Hunters' or Campers' Knife. Closed 4⅞ in.; open, 8⅛ in. Extra heavy built knife, one heavy 4-in. blade, black finish steel handle, hole in end for suspending, polished bolster; an exceptional knife for this price. Per dozen 1.10

LOCK BACK HUNTING KNIFE.

No. 485. Hunting knife, one large 5-in clip blade, curved handle, pressed shield and bolster, tapering end, inlaid with colored celluloid, combination brass ring, anchor lock back, pressing the anchor releases the lock and the blade closes. Brightly polished;; big flashy value; length 9 in. Dozen..... 1.25

No. 257. Hunting Knife. One razor edge scimitar blade, open 9 inches, best quality high grade steel, polished steel bolster. "Hunter's Own" etched on blade, hole through handl to attach knife to belt; rosewood handle. Dozen 3.35

No. 255. Hunting Knife. Deer foot shape; two blades, one large scimitar and one small congress, length open 8⅛ inches, highly polished keen blades, double steel bolster, brass lined, German silver shield with corkscrew; large blade locks when opened, closes by pressure on small blade; buffalo horn handle. Dozen 6.25

No. 256. Stag handle. Dozen 6.25

No. 262. Deer Foot Hunting Knife. Full length, 8¾ inches, genuine deer foot handle, spring lock back, brass lined, 4-inch clipper shaped, fine razor steel blade, patent bolster, forming a guard when blade is open. Dozen 7.25

No. 543. Deerfoot Hunting Knife, one large scimitar blade polished, self locking, brass guard and bolster, polished steel lined, with strong corkscrew. Genuine deerfoot handle with natural hair and polished hoof, 3⅝ inches long; best value offered this year. Per dozen 7.50

No. 585. Deer Foot Handle Hunting Knife. Two blades, one 4 in., the other 2⅛ in., self locking when opened, pressing on small blade releases the spring and the large blade shuts, fancy brass bolsters and brass lined, genuine deer foot handle, fine polished corkscrew at back. Dozen..... 9.75

No. 263. Deer Foot Hunting Knife, genuine deer foot handle, clipper shape razor steel blade, brass lined, brass hoof plate, patent spring back with belt and hook, fancy bolster and corkscrew in back. Dozen 12.25

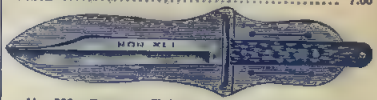
DAGGERS.

Dagger, genuine deer foot handle, nickel ferrule steel double guard, extra heavy, finely polished steel blades; swaged back on both sides. Sharp pointed. One of the best values in a deer foot dagger shown. A big flash and showy quality and really a good article in itself. Each in cloth covered case with nickel metal protected point.

No. 481. 4-in. blade, entire length 8½ in. Doz.. 3.25
No. 483. 5-in. blade, entire length 9¾ in. Doz.. 3.75
No. 482. 6-in. blade, entire length 10⅞ in. Doz.. 4.25

No. 584. Dagger. Superior quality finely tempered steel, highly polished on both sides, German silver guard and ferrule, German silver hoof plate, genuine deer foot handle, with nickel trimmed leather sheath with hook for hanging, 5-in. blade. Dozen..... 6.00

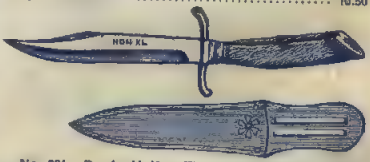
No. 528. Dagger. Same quality and style as above, 6-in. blade, in plain imitation leather case. Dozen 7.00



No. 266. Dagger. Full length 10¼ inches, blade 6 inches, scimitar shape, razor edge, polished steel, German silver straight guard, riveted stag handle, solid sole leather sheath, with belt loop. Dozen..... 5.75

No. 266½. Dagger, 7 inch blade..... 6.70

No. 265. Dagger. Full length 8 inches, 4 inch double polished, beveled needle point blade, fancy German silver bolsters and guard, heavy mother of pearl handle 2⅛ inches, with black leather sheath and belt loop. Dozen 10.50



No. 264. Bowie Knife. The genuine English steel, 7 inch blade, clip shape, bevel ground, fancy ferrule, genuine deer foot handle, nickel name plate cap, sole leather sheath with each knife. Dozen 11.00

SHURE THE WINNER PRICE LIST

POCKET KNIFE ASSORTMENTS - For Knife Rack Men or Dealers

After catering for many years to the streetmen and outdoor venders, we have gained a certain amount of knowledge as to their methods and ways of doing business, and particularly the kind of goods they handle and the quality of goods that most appeal to them. In view of this fact, we have gathered from this experience a store of knowledge through which, by putting into practice, we aim that other streetmen and novices not yet in the field should benefit by. Upon this basis our knife assortments are made up, and we can assure you that they will meet with the popular desires in this line and that they are a success from the word GO everywhere. A trial will convince everybody who is posted on values, and particularly those who have been buying pocket knives from high-priced sources. They will be amazed at the variety of goods that we offer for these little sums of money.

Our "Starter" Pocket Knife Assortment comprises 100 knives, ranging in price from 35 cents to $3.50 a dozen. The majority of the assortment is made of the staple styles and price goods. They include all the popular shapes and kinds of handles, in 1, 2 and 4 blades. Just the assortment for a man starting into business.
Per assortment 5.00

Our "Top Notch" Knife Assortment consists of 200 pocket knives, ranging in price from 45 cents to $12.00 a dozen. The bulk of this assortment is, of course, made up of the popular low and medium priced goods, so as to get the biggest variety possible; and it has a sprinkling of the flashy goods, which makes it doubly desirable, as it has the appearance, the quality and quantity. All styles of handles, shapes and kinds represented. From 1 to 4 blades, including deerfoots, daggers, pearls, etc.
Per assortment 15.00

Our "Advance" Knife Assortment consists of 150 knives. It is a clever combination of knives, ranging in price from 45 cents to $3.50 a dozen, including all the popular and well known kinds and shapes of handles, in 1, 2, 3 and 4 blades. This gives the dealer a variety that covers pretty much all of the every-day sellers.
Per assortment 10.00

Our Matchless Knife Assortment consists of 300 knives -pocket and jack knives, pearls, daggers, deerfoots, hunting knives, in the best of variety of styles and kinds of handles, 1 up to 4 blades inclusive, ranging from 35 cents to $13.50 a dozen. Bulk made up of the popular medium priced goods, with a generous sprinkling of the flashy styles. In view of this, this is one of the finest assortments ever offered and big and complete enough for the most exacting knife-boardman or dealer. No item that is desirable as an attraction or a good seller is omitted from this variety.
Per assortment 25.00

WHOLESALE **N. SHURE CO.** CHICAGO.

HUSSON SOLID OIL MINER'S LAMPS

Plain

(Cut Shows Single Wire Hook)

No. 2, 4, 6 Miner's Lamp—Single or Double Wire Hooks or Flat Retinned Hook

Per dozen	$ 3.50
Per gross	38.[illegible]
No. 2—Height of Body	2 Inch
No. 2—Diameter of Copper Spout	3/8
No. 4—Height of Body	2[illegible]
No. 4—Diameter of Copper Spout	3/8
No. 6—Height of Body	2[illegible]
No. 6—Diameter of Copper Spout	[illegible]

Complete with Detachable Stick

(Cut Shows Flat Retinned Hook)

No. 2, 4, 6 Miner's Lamp—With Flat Retinned Hook, or Single or Double Wire Hook

Per dozen..	$ 6.48
Per gross	72.00

No. 1 MINER'S CANDLE HOLDER
With Detachable Stick

Per doz., $ 3.20
Per gross, 36.00

No. 4 MINER'S CANDLE STICK

Per doz., $ 2.70
Per gross, 30.00

EXTRA DETACHABLE STICKS

Length 8¼ inches, doz.....$1.60 Gross..$18.00

A Few Facts and Suggestions

In order to secure the best results from the use of Miner's solid oil, the best known oil for Miner's Lamps, the wick of the No. 1, 2 and 3 Husson Lamp should not be more than four inches in length, and for Husson's No. 4, 5 and 6 Driver's Lamp—five inches in length.

Miner's solid oil when heated is more fluid than other oil, therefore the wick should be made to fill the spout of the lamp—not too tight, neither too slack—thus allowing free feeding and yet preventing dripping from the end of the spout.

When new wicking is put in it is a good plan to pour a little melted oil into the bottom of the lamp, to encourage quick lighting.

Fill the lamp with solid oil before putting out the light so as to utilize the heat in the lamp. It is also well to fill up the wick just a little before putting out light.

With our *detachable stick* there are no holes punched through the bottom of lamp to cause leaks at this point, such as are made by the spring of the stick, cracking the solder on old style lamps. We put our detachable stick on every kind and style of lamp.

When wicking is to be drawn up, release stick and use as tweezers. In using it this way you do not mar and split the copper spout, such as is done by prying it up with a nail, as has been the custom.

You will note the *copper wire* in the Husson Lamp is placed behind the spout and prevents interference with the action of the wick, when it is necessary to raise or lower it. This provides ample heat for melting the solid oil and being permanently placed, prevents losing it.

When starting lamp full of cold solid oil, put point of lamp stick in copper loop and raise copper wire up, say about half an inch above lamp wicking, then light. When oil is thoroughly melted shove copper wire back in original position. When lamp becomes overheated turn loop on copper wire to be offset from flame; if then the heating capacity be too great, press copper wire down level with copper spout.

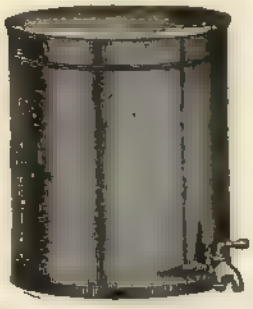
If wishing to hang lamp over head on drift ceiling, force in the stick and hang lamp in loop. This detachable stick is much stronger than the ordinary brass stick and is a handy tool for the miner, such as in reaming holes in dynamite to place cap and fuse in, and also may be used as a cap crimper.

WALTON OIL TANKS

For Illuminating and Lubricating Oils

Made of heavy galvanized steel with wood bottom reinforcing the metal bottom nicely painted and stenciled.

Capacity, Gallons	Price Each
30	$10 50
60	15 00
110	20 00



GASOLINE TANKS

For Gasoline, Turpentine and Light Oils

These tanks are made of Nos 26 and 24 galvanized iron with wood bottoms beneath the metal ones. They are perfectly air tight, the opening in top being securely covered with a 4 inch can screw. We use a ground brass faucet for drawing off the contents.

Capacity, Gallons	Diameter, Inches	Height Inches	Weight lbs.	Price Each
30	22	24	30	$ 6 00
60	25	28	40	7 00
110	30	36	60	9 00
165	37	36	80	12 50
215	37	48	125	18 00
265	37	54	150	22 00
325	40	58	[illegible]	30 00

OIL PUMPS

No. 1	32 in. 1¼ in diameter	$2 25
No. 2	4 feet, 1¼ in. diameter	3 50
No. 3	6 " 1¼ "	5 00

Extra length is 50 cents per foot

WOOD JACKET CANS

Capacity, Gallons	Price Each	
	With Spout	Without Spout
1	$ 0 55	$ 0.40
2	70	55
3	85	70
5	1 00	85
10		1 50

VARNISH TANKS

For Heavy Oils and Varnishes

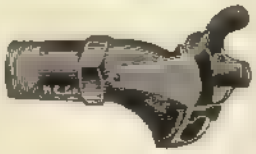
These tanks are made with a hinged cover, and 1¼ inch Perfection Gate. Special dimensions and styles are made to order.

Capacity Gallons	Diam. inches	Weight lbs.	Height inches	Price each
30	22	30	24	$7 00
60	22	40	36	8 50
110	30	60	36	11 00

GATES OR FAUCETS

STEBBINS'

1 inch	per doz.,	$ 7.00
1¼ "	"	8 00
1½ "	"	9 00
1¾ "		10 00
1¾ "		12 00



PERFECTION

½ inch	per doz.,	$ 9 50
¾ "	"	12 00
1 "	"	14 00
1¼ "	"	16 50
1½ "	"	20 00
2 "	"	28 00
3 "	"	36 00

Gates with gas pipe thread or tinned ends are special but can be furnished without extra charge when so ordered.

TALLOW POTS

IXX Tin, copper bottom, 2 quart capacity.

Per dozen $10 50

CAR OIL CANS

10 quart, box oiler galvanized iron. Per doz..... $11 00

4 quart, straight spout, iron Per doz. 9.50

4 quart, tin top iron Per doz. 7.00

DOPE PAILS

Galvanized iron, 10 quart with lip Per doz..... $12 50

Galvanized iron, 10 quart, with spout Per doz .. . 16.00

EMPLOY US AS YOUR PURCHASING AGENTS

In the files of our Purchasing Department we have complete information and facilities for purchasing materials of all kinds and for all purposes. We take pleasure in extending to our customers the services of this department when in the market for material which is not found listed in our catalog. Our long experience insures accurate judgment as to quality; our purchasing power insures lowest quantity prices. We can relieve you of detail, worry and responsibility, and save you money.

"Concentrate your purchases"

FRANKLIN

Does it pay to own a heavy automobile?

Figure it out. Get the weights of a dozen of the best-known 5-passenger touring-cars. See them weighed yourself. The 5-passenger Franklin Type D weighs under 2200 pounds. The other makes weigh on the average a third more.

That means they use up a third more horse-power, a third more gasoline, and a third more tires, doing the same work as Type D. More gasoline than that, because the air-cooled Franklin engine gets more power out of the gasoline.

Another thing: There is less strain on Type D—or any Franklin. The Franklin does not jolt and rack itself. It lasts longer. It has 4 full-elliptic springs and a laminated wood frame. It has no water-cooling weight and complication. It is easy to ride in; easy to handle, strong, and safe. You can use all the power. The Franklin carries the same load on American roads further in a day than any heavy automobile.

The price of Type D is $2850, yet in six months it costs less than a heavy automobile bought at a considerably lower price.

The Franklin Type G family touring car at $1850 and weighing 1600 pounds does more work and costs less to use than any 2000 pound automobile. The 1 cylinder, 7 passenger Franklin Type H costing $4000 weighs only 2[illegible] pounds and is more economical to maintain than the average 5-passenger, 4-cylinder machine

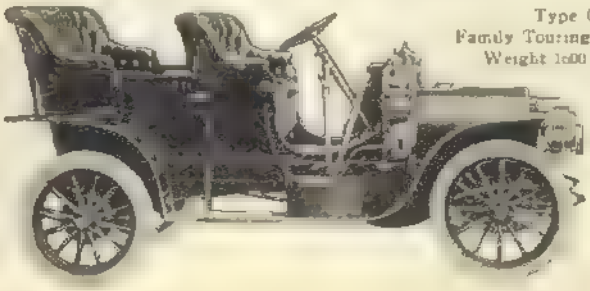
With a heavy automobile you cannot get the benefit of the excessive operating cost.

Is it good business to pay for useless weight?

Write for the catalogue describing Franklin models.

H H FRANKLIN MFG. CO. Syracuse N Y

Member Association Licensed Automobile Manufacturers



Type G
Family Touring Car, $1850
Weight 1600 pounds

CORK SCREWS

Assorted Styles

No. 12. Cork Screw, 3 styles assorted on card, wooden and steel handles different shapes, warranted fine tempered steel, nickel-plated, nicely finished, one dozen in box.
Dozen ..... .40

No. 15. Cork Screw, fine tempered steel, nickelplated and polished, assorted 6 styles on card, black, red and natural wood handles, some all steel, folding style and two on each card with tube point protectors; all fine goods, one dozen in box.
Dozen ..... .75

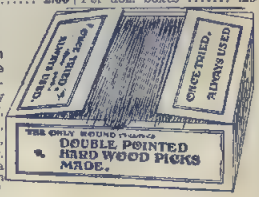
Japanese Tooth Picks

A Good Prophylactic Tooth Pick.

No. 100. Japanese Tooth Picks. A very select quality of bamboo picks tied in bundles, 5 bundles in fancy colored straw Japanese box 100 boxes in carton. A reliable and favorite tooth pick.
Per carton ..... 2.00 | Per doz. boxes ..... .25

Perfection Tooth Pick.

Perfection toothpicks, are made from sugar maple, they are sharp, stiff, double pointed, and polished, will not sliver. 330 picks in a box. Per carton of 24 boxes. .70



Block Lights Complete - Ready for Service

All Block lights are guaranteed 200 candle power; they flood the room with a steady unchanging light with peculiar mellowness that relieves the eyes from all strain, the Block light burner combines air and gas in the right proportions to produce a perfect light with the smallest consumption of gas. In ordering state very particularly what kind of gas these are wanted for, whether manufactured gas, natural or gasoline gas.

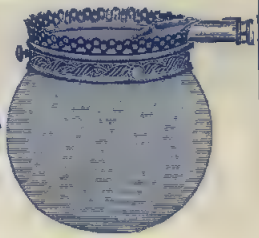
BLOCK INVERTED LIGHTS.

1850

1852

1854

1860



No. 1850. Complete Incandescent Gas Lamps. This consists of gas burner and mantle with support, opal glass globe bulb shape, 200 candle power light, of a high construction and of perfect working order.
Dozen..... 2.25 | Each..... .30

No. 1852. Block's Simplex Combination Light. Consists of the very latest improved burner called the Block Simplex, made by the Block Light Co., with famous Simplex mantle and genuine Schott & Jena improved "Q" globe, ventilator bottom, a light that can be highly recommended.
Dozen..... 6.00 | Each.. .... .55

No. 1854. Combination Light. Consists of genuine Block No. 50 burner, latest improved patent with XX Block mantle, and the well known Schott & Jena imported "Q" globe, air hole bottom, this is the only 300 candle power light on the market for natural or artificial gas, none genuine without the name "Block" stamped on burner and mantle.
Dozen..... 7.50 | Each..... .65

No. 1860. Block's Simplex Combination Light. Consists of the famous Block Simplex burner and mantle with 10-in. milk white opal shade on an adjustable tripod and the genuine Schott & Jena clear chimney, a perfect lamp for the student, house or library.
Dozen..... 7.50 | Each..... .65

Block's Inverted Light Combination Lamp is an innovation in this line, it is a light of remarkable brilliancy and very economic, costs ½ less to maintain this lamp than any electric light, its radiance is marvelously bright diffuses steadily, fits any fixture and is readily and permanently attached, the only improved inverted light in the market, complete with burner, mantle and globe

No. 364-C. Clear glass globe.
Dozen ..... 8.25 | Each ..... .70

No. 364-O. Opal Globe.
Dozen ..... 8.25 | Each ..... .70

No. 364-F. Frosted Glass Globe.
Dozen ..... 8.25 | Each ..... .70

No. 364½. Half Frosted, half opal Glass globe.
Dozen ..... 8.25 | Each ..... .70

NEVER SLIP HEEL PLATES.

Are made from Sheet Steel, died out when the metal is cold, thus the frost will not cause them to break.

The Calks are made of Steel and are inserted in the plates. They will not ball up with chips or snow, nor will they pull out or bend over, but are always firm and upright.

Are made in three sizes, Nos. 1, 2 and 3. No. 1 fits a 10 to 12 rubber, or any large heel; No. 2 will fit 7 to 10, and No. 3 will fit a 5 to 7 heel.

They are packed in cartons holding one pair, with clinch nails to hold them on.

Never Slip Heel Plate, - - - Per dozen pair, $3 00

O K ICE CREEPERS.

Applied as a Pair of Skates.

The O K Ice Creeper is an adjustable detachable Creeper which can be used in the streets, on the roads and in the woods.

They can be adjusted to fit several size heels, are easily applied and quickly removed, neat in appearance, light and strong, made of good quality Steel and properly tempered.

Made in Three Sizes:

No. 0 Large; No. 1 Medium, and No. 2 Small.

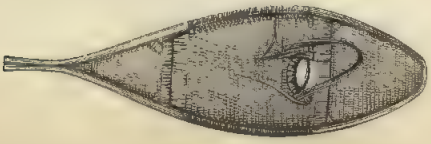
O K Ice Creeper, - - - Per dozen pair, $3 00

Packed one dozen pairs of a size in a box.

EAGLE ICE CREEPERS.

NICKEL PLATED.

Eagle Ice Creeper, - Per dozen pair, $1 80

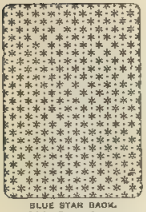


SNOW SHOES.

INDIAN MAKE.

					Per pair.
No. 4½,	Ladies' Club Snowshoes,			12x36 inches,	$5 00
" 5,	Men's	"	"	12x42 "	5 50
" 6,	"	"	"	14x42 "	6 00

PLAYING CARDS.



BLUE STAR BACK.
999 Steamboat.

CUPID BACK.
No. 808. Bicycle.

COLONIAL GIRL
Copyright, 1906, by The U. S. Playing Card Co.

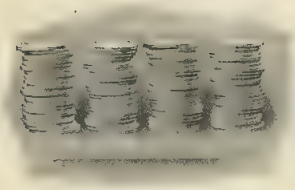
KNUCKLE-DOWN
Copyright, 1906, by The U. S. Playing Card Co.

No. **999**, Steamboat, Finish and Slip unequaled, Rounded Corners and Indexed, Per dozen, $1 20

" **808**, Bicycle, Ivory Finish, each pack in a printed Enameled Tuck Box, assorted Backs, - Per dozen, $3 00

No. **606**, Ex. Congress, finest Linen Stock, Double Enameled and Highly Finished; assorted Backs, put up in handsome Gold Stamped Case, - Per dozen, $6 00

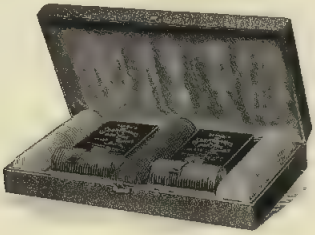
POKER CHIPS.



Unbreakable.

Common, Plain, 1½ inch, Per 1000, $12 00
Embossed, 1½ inch, - " 20 00
Engraved, 1½ inch, - " 24 00

100 in a box.



No. 1, Set.

No. **1**, Poker Set, contains one pack Bicycle Cards and 100 Common Plain Chips, Per set, $3 00

" **2**, Poker Set, contains two packs Bicycle Cards and 200 Common Plain Chips, Per set, 4 00

Cases Maroon, Peganoid Cloth, Leather finished outside, Purple Plush Cushioned; lined with Royal Purple Silk.

MORLEY-MURPHY HARDWARE COMPANY, GREEN BAY, WIS.

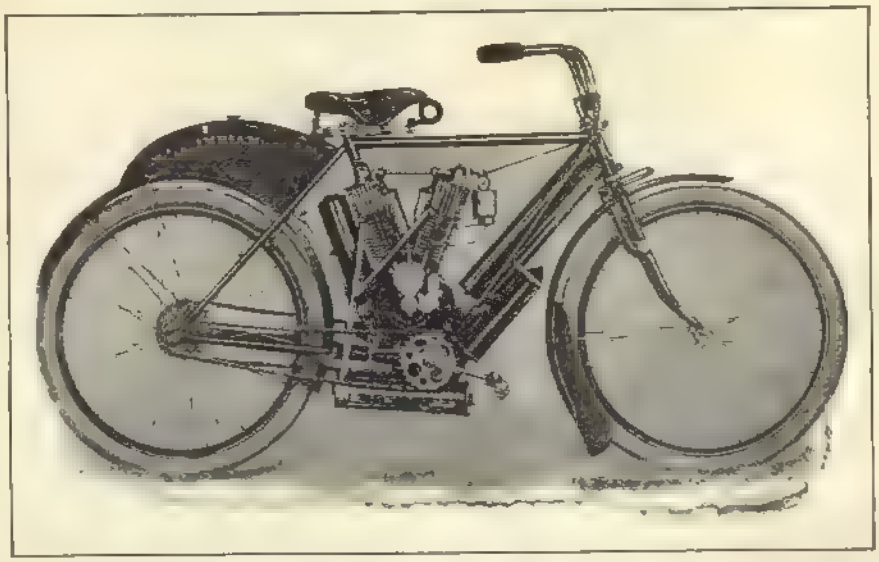
INDIAN MOTOCYCLES

SURPASS ALL OTHERS

They Have Won Every Important Contest for Speed, for Reliability, for Hill Climbing, for Economy

DURING SIX CONSECUTIVE YEARS

NO OTHER MACHINE HAS SUCH A RECORD



THE POPULAR MODEL FOR 1908—THE INDIAN TWIN.
THREE MODELS, SINGLE CYLINDER. ALL EXTRA GOOD.

Machines with a Reputation.
Machines that sell Themselves.
What more to you want?
Send at once for Catalogue P, and Particulars.

Hendee Manufacturing Company

Springfield, Mass.

SOLE AGENTS FOR BROOKS SADDLES FOR MOTOCYCLES AND BICYCLES. GET PRICES.

Answers to Motor Cycle Questions

BY CHAS. H. METZ

FREIGHT RATES ON MOTORCYCLES.

In the course of business I have just bought a motorcycle from a party in Mississippi and on its arrival am astonished to find it charged at a rate of freight three times first class, amounting to nearly $15.00 from Quincy Miss to Lincolnton, N. C I have never paid over two times first class before. had the agent here to take up the matter at once with agent at shipping point, also at Birmingham, Ala., but claim is made that classification is correct.

I have never paid over from $4 to $6 freight charges on shipments this distance of single motorcycles, and I thought you might be able to give me some information that would enable me to proceed intelligently to have the matter righted

Your past courtesies prompts me to make this request and any assistance you can give will be deeply appreciated by a subscriber and reader of the Journal. —N E RAMSEY

I am not able to get much satisfaction from the New England Agent of the Seabound Air Line The rate seems exorbitant.

In a general way the freight rate from Eastern points to the Mississippi River is double first class, and triple first class west of the Mississippi River. This has been modified some to take affect April 11th.

Following is what the General Eastern agent of the C. & S. R. Co. says: "The rates applicable to different territories depend on the classification governing. Official classification rates motorcycles at 1½ times first, while in the western 3½ times first class is provided for."

The Agent of the Seaboard Line has this to say: "On automobiles locomobiles and other self propelled vehicles set up L. C. L. 3 x 1. If knocked down." "Of course it depends entirely upon how this particular shipment was packed and you can judge accordingly as above mentioned."—C. H. M.

INTERESTING AND INSTRUCTIVE.

I would like you to give me some information in the April issue of the Cycle and Automobile Trade Journal, on the following points in connection with a motorcycle I intend to have built.

1 What is the lightest possible gauge 1½ inch tubing it would be safe to use for the frame; also what size for fork and stays? The engine will be a double-cylinder, about 65 lbs. weight. 130 lb. rider.

2. Please explain how wheels are built up, with 36 and 40 spokes.

3. If three dry cells will run a single-cylinder engine 1,000 miles, what mileage can be obtained from them when used with a double-cylinder engine?

4 What mileage can be obtained from 4 2¼x6 cells when used two at a time, then all together, as in the M. M. machine?

5. I notice many manufacturers advertise the top tubes of their machines as being from 28 to 31 inches from ground. The M. M. people in particular state that riders with 30 inch legs can reach the ground when seated in the saddle. I cannot understand this, in view of the fact that the wheel itself is 26 inches, and the double thickness of the 2½ inch tire brings it up to 30½ inches, not counting the distance from top of tire to top of saddle, which must be about 5 inches more. If I am wrong in my figuring, please explain where.

6 I have measured a number of wheels of bicycles and motorcycles, all of which were supposed to be "28 inch wheels" and find them but 25½ inches in diameter What is the reason for this apparent discrepancy?—J J D

1 The gauge of tubing depends largely upon the design of the frame, and the distribution of the various parts of the outfit 14 and 16 gauges are commonly used ⅜ and ½ inch for rear stays, 14 gauge.

2 There is no set rule in regard to setting up wheels of 36 or 40 spokes For greatest strength spokes should cross three or four times and flanges should be at least 2½ inches apart Observe the method of spoking on the ordinary bicycle wheel, and follow the same principle on the motorcycle wheel using for front .08 x .105 wire, rear .1 x .12 wire.

3 This depends upon the ratio of gearing. As an example suppose the single cylinder to be geared 4 to 1 and the twin 3 to 1. The single will then spark 4 times while the twin sparks 6 times. Therefore, if single will run 1,000 miles, the twin will run ⅔ or ⅔ of 1,000 or 666 miles, all other conditions being equal.

4 Each set of two batteries should run the twin at least 400 miles, and the two sets combined about 200 miles more making 1,000 miles in all The principle is this. the voltage on two cells is less than on three, consequently a smaller amount of current flows from the battery at each make and brake, but on account of the lower voltage the battery cannot be drawn so low, and still do effective work The combination of the two sets of low cells will raise the voltage, making the pressure sufficient for another period of effective work.

5. Wheels are measured at the outside diameter of tire. A 28 inch wheel with 2½ inch tire actually measures ⅜ inch less because the rims are made with the idea of using 2½ inch tires when desired, and when these are used the outside diameter is 28 inches. This allows 4½ inches from tire to top of saddle which is quite possible in a design such as the M M. Special and Twin.

6. This is explained in the foregoing paragraph. the case being the same as regards the ordinary bicycle where the diameter at the seat of the tire is the same for 1½ and 1¾ inch tires. The smaller size being used more generally than the larger, your measurements were probably made on the 1½ inch size.—C. H. M.

CHOICE OF MACHINE CHAIN OR BELT.

Brockton, Mass.

Being a reader of your journal for some time, I write to inquire your opinion as to which you would pick to be the best American chain-driven and belt-driven motorcycle for 1908. By this I mean everything as a whole. Speed, endurance, workmanship, etc., regardless of price. I should like to have your opinion on one and two-cylinder machines, also which in your mind is best, chain or belt drive. Before hearing from you, would say my pick is as follows:

No. 1 for chain drive, one cylinder.
No. 2 for chain drive, two cylinder.
No. 3, for belt drive, one cylinder.
No. 4, for belt drive, two cylinders.

I should be pelased to hear from you as to my opinion. I am now an Indian rider and F. A. M. Awaiting your reply, I am,

P. E. B

My choice for chain drive, single cylinder, would be No. 5; twin cylinder, No. 6. To be sure, these have not had a chance to prove their worth, but the design and principles involved, together with No. 5 workmanship place them at the head of the list.

Notwithstanding the above, however, my very first choice is a belt drive compared with any chain. It has advantages which add to the rider's comfort such as noiselessness and smoothness of drive impossible to acquire through any metallic means of transmission.

Your first choice in the belt drive, single cylinder, concurs with my opinion, and for twin cylinder you are not far wrong, but No 7 twin should not escape your attention, as I firmly believe this to be the best.

Comparing chain and belt: In a general way the advantage of chain is a slight economy in power when chains and sprockets are in good condition.

Advantage of belt: Smoother drive, longer life, more silent, simpler and cleaner.—C. H. M.

TWO-CYLINDER OPPOSED MOTORCYCLE ENGINE ORDER OF FIRING.

I am constructing an opposed 5-horse power motor for a motorcycle. How should the cylinders fire? The pistons are connected to the same crank From my drawings, it looks as the the engine would fire unevenly What ratio is best? Wheels 26 inches,

The 1909 Jackson Model "H"

Four Cylinder

A Five Passenger Touring Car of Elegant Appearance—Light, Powerful, Smooth Running and Moderate in Price

No Hill Too Steep

Jackson Model "H." Price, $1,600 (Top and storm front, $75 extra.)

No Sand Too Deep

In PARTICULAR

Some of the Striking Features of this Car of marvelous value are its 30 horse power 4 cylinder motor with 4½ bore and 4½ stroke (compare this with the dimensions of any other car on the market around this price), selective type, sliding gear transmission, Hess-Bright bearings, 32 x 4 pneumatic tires, oiler built in base of motor insures perfect lubrication, 110½ inch wheel base, double ignition with batteries and Magneto (Splitdorf), and full elliptic springs, which have been most carefully tempered, tested and adjusted, and which are a perfect revelation in the solution of the easy-riding problem. Elegant gas lamps, generator, Dragon horn, and a robe rail are included in the equipment, and all of the appointments are as nearly perfect as they can be made. See the car for yourself. To try it is to buy it.

The COMPLETE LINE

JACKSON MODEL "H" 4-cylinder Touring Car,	$1,600
JACKSON MODEL "H" 4-cylinder Roadster,	$1,600
JACKSON MODEL "E" 4-cylinder Touring Car,	$2,000
JACKSON MODEL "E" 4-cylinder Roadster,	$2,000
JACKSON MODEL "C" 2-cylinder Touring Car,	$1,250
JACKSON MODEL "F" 2-cylinder Runabout,	$850
JACKSON MODEL "K" 2-cylinder Small Touring Car,	$950

JACKSON AUTOMOBILE CO.

Jackson, Michigan

MODEL L. D. 9—4 cylinder, 30 H. P.

Selective type transmission, Timken roller bearings, I beam front axle, floating type rear axle, 107-inch wheel base, ¾ elliptic springs, Remy magneto with single, non-vibrating coil and dry cells. Four and five passengers.

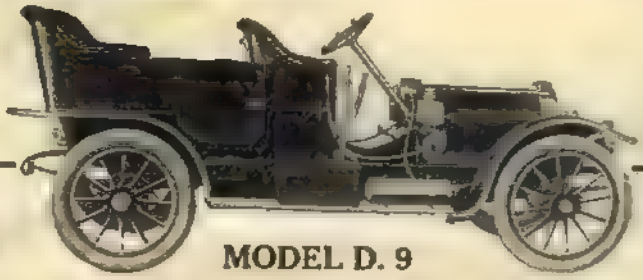
ROADSTER $1350

TOURING CAR $1500

KISSEL KAR

The car that's made complete by one manufacturer, which reduces cost so that Kissel Kars sell at a much lower price than other high grade cars, yet are identical with them in high grade construction and luxurious appearance, as you can prove yourself, at a saving to you of as much as a thousand dollars.

Write to-day for catalogue, and name of dealer who will show you the motoring ability of any model on the hardest roads and hills YOU can select.



TOURING CAR $2000

ROADSTER $2000

MODEL D. 9
4 cylinder—40 H. P.

Larger, but practically the same construction as Model L. D 9 115 inch wheel base, ¾ elliptic springs, I beam drop forging front axle, floating type rear axle, selective type transmission, Atwater-Kent generator, or Remy magneto with single, non-vibrating coil and dry cells. Five and seven passengers.

WRITE FOR CATALOG—Do it **to-day**, if you are really open minded about selecting a car, and are looking "not for the best quality **for the money**, but for **the best quality for the lowest price that you can buy real quality.**"

KISSEL MOTOR CAR CO., 120 Kissel Ave., **Hartford, Wis.**

JACKSON

As Usual A Winner

MODEL E, JACKSON, $2000. 4-Cylinder, 35 H. P. 111-Inch Wheel Base

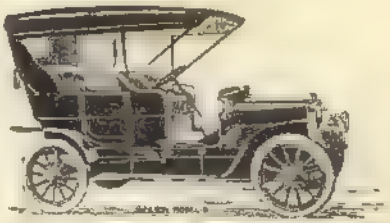
In the Fort George Hill Climb, held at New York City, April 9th, a regular stock MODEL E, JACKSON selling for $2000 defeated all competitors easily and made faster time than any Touring Car regardless of price.

Other Models

MODEL C, JACKSON, $1250, 2 Cylinders, 24 H. P.

MODEL F, JACKSON, $850, 2 Cylinders, 18 H. P.

Engine under hood, Shaft Drive.



MODEL D, JACKSON, $1500. 2-Cylinder, 24 H. P., Engine under hood, Shaft Drive, Selective Type Transmission

JACKSON AUTOMOBILE CO.

Jackson, Michigan

THE "Maxwell"

It seems too bad, but it's a fact just the same—and you, Mr. Dealer, and I, might just as well be frank in discussing it—that the Dealer has had to carry the heaviest load and take most of the risks in this business during its period of development; and on the whole he has been a loser.

Few dealers have made money—you know that, and I know it. I deplore it—but facts are stubborn things.

There have been many reasons—incompetence on the dealer's part in many cases—an unsatisfactory product in more; and you have all had dealings with the maker who would not do his part—would not back up his cars when they failed to meet his glowing promises.

But underlying all these is a cause which, until it is eliminated, must always produce the same effect.

The automobile industry will never be on a firm footing until the maker can count, from year to year, decade to decade, on the same sales organization.

This cannot come to pass until some plan of operation —or rather co-operation—has been devised which will insure to the manufacturer the loyalty of every dealer in the field, and to the loyal dealer a share in the proceeds of the manufacturer's success.

Now I believe the sales organization is the key to success in this business. I believe it is the manufacturer's safeguard—the customer's mainstay.

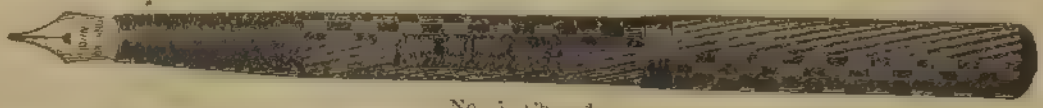
I have given much thought to the solution of this problem. As a net result I have a remedy—to quote our friend from Boston.

FOUNTAIN PENS.

John Holland; Patent Elastic Feed.

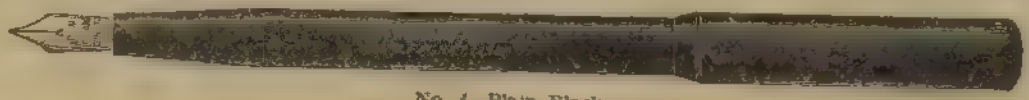
No. 21 GENTLEMEN'S 18 K. Gold Filled Mountings Fine, Medium or Stub 18K Gold Pen ..... Per Dozen $48.00

No. 22 LADIES 18K. Gold Filled Mountings; Fine, Medium, or Stub 18K. Gold Pen..... Per Dozen $36.00



No. 5—Chased

No. 5 Fitted with Fine, Medium or Stub 18K. Gold Pen; PLAIN BLACK, MOTTLED OR CHASED FINISH.. Per Dozen $42.00

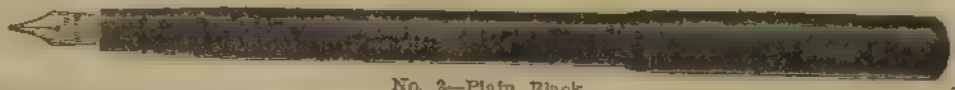


No. 4—Plain Black.

No. 4—Fitted with Fine, Medium or Stub 18K. Gold Pen; PLAIN BLACK, MOTTLED OR CHASED FINISH.. Per Dozen $36.00

No. 3—Mottled.

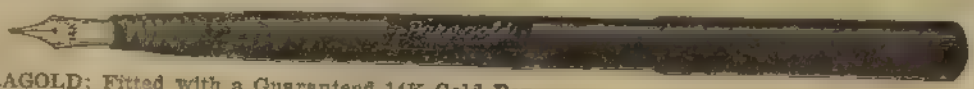
No. 3 Fitted with Fine Medium or Stub 18K Gold Pen; PLAIN BLACK, MOTTLED OR CHASED FINISH Per Dozen $30.00



No. 2—Plain Black.

No. 2—Fitted with Fine Medium or Stub 18K Gold Pen; PLAIN BLACK, MOTTLED OR CHASED FINISH.. Per Dozen $24.00

In ordering above always specify whether Fine, Medium or Stub Point is wanted Where this is not stated we will send assorted.



No. 30—PARAGOLD; Fitted with a Guaranteed 14K Gold Pen ..... Per Dozen $15.00

No. 35—VICTOR STYLOGRAPHIC PEN The best Pen ever invented for Manifolding, Ruling, etc..... Per Dozen $12.00

Illustrations of Pens are two-thirds actual size
One in a Cardboard Box, complete with Filler and directions for use.
Weight per Dozen about 1 lb.

FOUNTAIN PEN ASSORTMENT.

No. 1000—PEN ASSORTMENT; Consists of one-sixth dozen No. 2; one-fourth dozen No. 3; one-fourth dozen No. 4; one-sixth dozen No. 5; one-twelfth dozen No. 22; one-twelfth dozen No. 24..... Per Assortment $34.50

Weight per Assortment about 2 lbs.

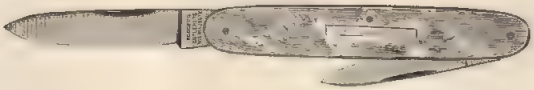
This Handsome Easel Back Oak Frame Glass Case Supplied Without Charge to Dealers Purchasing a Dozen Assorted John Holland Fountain Pens and No. 1000 Pen Assortment.

POCKET KNIVES.

JOSEPH RODGERS AND SONS.

No. 21797. **Stag Handle**, Two Blades, 3¼ in., Brass Lined ..... Per dozen $18.30

No. 24726. **Pearl Handle**, Two Blades, 2⅞ in., Brass Lined ..... Per dozen $31.30



No. 24900. **Pearl Handle**, Two Blades, 3⅛ in., Brass Lined ..... Per dozen $49.60

No. 21798. **Pearl Handle**, Two Blades, 3¼ in., Brass Lined ..... Per dozen $32.30

No. 24785 **Genuine Stag Handle**, Three Blades, 3¼ in., Brass Lined ..... Per dozen $37.70

No. 16072. **Genuine Stag Handle**, Three Blades, 3⅜ in., Brass Lined ..... Per dozen $30.20

No. 21868. **Genuine Stag Handle**, Three Blades, 3½ in., Brass Lined ..... Per dozen $30 20

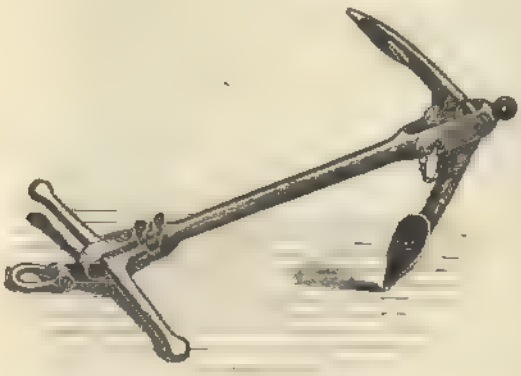
All above, half dozen in a box.

KEDGE ANCHORS

Size. Lbs.	Length Inches	Each. Black.	Each Galvanized	Size Lbs.	Length Inches	Each Black.	Each Galvanized
4	15½	$0 58	$0.70	10	24	$1.08	$1.12
5	16	.67	.83	12	27	1.17	1 53
6	18	.75	.95	14	27	1.25	1 63
7	21	.83	1.07	16	29	1.33	1 76
8	23	93	1.20	18	29	1.42	1 88
9	23	1.00	1.30	20	31	1.50	2 00

DIRIGO FOLDING ANCHORS

Galvanized Iron



OPEN

CLOSED

Size Lbs	Length. Inches	Price. Each	Size Lbs	Length. Inches	Price Each	Size Lbs	Length Inches	Price Each.
4	17	$1.25	10	23	$2 50	20	30	$4 50
6	19	1 50	12	25	3 00	26 up	33	20 Lb.
8	22	2.00	16	28	3 50			

STOCKLESS ANCHORS

Galvanized

BABBITT'S PATENT

No	Weight. Lbs.	Price Each	No.	Weight Lbs	Price Each
0	7½	$1.25	4	36	$ 5.75
1	12	2.50	5	56	7.50
2	18	3 25	6	76	10.00
3	26	4.40	7	100	13.50

ROW LOCKS

Socket

Number	Distance Between Horns Inches.	Galv. Cast Iron Price per Pair	Galv. Malleable Iron Price per Pair.	Polished Brass Price per Pair	Nickel Plated Price per Pair
0	1¼	$0.15	$0.30	$1.25	$1.75
1	2	.20	.35	1.40	1.90
1½	2½	.25	.45	1.60	2.10
2	2¼	.30	.50	2.00	.....
3	2¾	.45	.60	2.60	.....
4	3	.65	.80	3.25	.....

Patent Swivel

Number	Distance Between Horns. Inches.	Galvanized Malleable Iron Price per Pair	Polished Brass Price per Pair.	Nickel Plated Price per Pair.
0	1¼	$0.70	$2.25	$2.75
1	2	.85	2.40	2.90
2	2¼	1.00	3.25	3.75
3	2½	1.25	3.50	..
4	2¾	1.50	3.75	. . .
5	3	1.75	4.00	.

Round Pocket

Number	Diameter of Ring or Inside Clear. Inches	Galvanized Cast Iron Price per Pair.	Cast Malleable Iron Price per Pair	Polished Brass Price per Pair
0.....	2	$0.20	$0.35	$1.40
1.	2¼	.25	..40	1.50

Side Plate

Number.	Distance Between Horns Inches	Galv. Cast Iron Price per Pair	Galv. Mal Iron Price per Pair	Polished Brass Price per Pair
0.....	1¼	$0.20	$0.35	$1.30
1	1¾	.25	.40	1.50
2	2	.35	.50	2.00

North River

Distance Between Horns Inches.	Galvanized Cast Iron. Price per Pair.	Galvanized Malleable Iron Price per Pair.
2	$0.25	$0.40

‡AXES.

Show comparison of various patterns of Axes, which can be furnished in any of our Cataloged Brands. Patterns not regularly listed under the respective brands, for stock shipment (on pages 2 to 21 inclusive) can be furnished only by shipment direct from factory.

Dan, S. B.

Yankee, S. B

Michigan, S. B

Wisconsin, S. B

Regular Kentucky S. B

Southern Kentucky, S. B.

Baltimore Kentucky, S. B.

Baltimore Jersey, S. B.

Rockaway Jersey, S. B.

Ohio, S. B.

Hoosier of Zk. S. B.

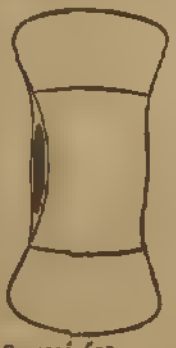
Wedge, S B,

Turpentine.

Boxing

Regular or Western, D. B.

Wisconsin, D B



Reversé (or HaPeeling), D. B.

Full Peeling, D. B.

Michigan (or Crown, D. B.

Falling, D, B.

Wedge, D B.

HANDLE COMBINATIONS FOR HANDLED AXES.

TRADE MARKS: E. C. SIMMONS' *KEEN KUTTER*, "NONPAREIL," "CUMBERLAND," "DELMAR," "MINNESOTA CHIEF" AND "KREOLE," REGISTERED.

Twenty Years experience in Handling Axes. IT IS NO EXPERIMENT WITH US.

Our Axe Handling Department is under Our Own Supervision, and we employ Workmen who know by many years experience the Correct Shaping and Set of the Handle. Every Axe is Handled by a Fixed Gauge to insure its being Perfect in this respect.

Sectional View of Wedge

Application of Wedge.

All our Handled Axes are Wedged with our New Greiner Patent Double Locking Staple Axe Wedge, which will positively prevent the Head from flying off the Handle. The Heavy Malleable Wedge has a Slotted Top and Grooved Sides, with Lugs at each Side; A Strong Steel Wire Staple is Driven Astride the Wedge, the Sharpened Ends of the Staple being Curled and Forced into the Wood on both Sides by the Lugs, Getting a Positive Double Lock.

Showing our Secure Method of Crating and Wrapping all our Handled Axes.

Priced Complete, Including Cost of Handles, Wedges, Handling, Fitting, etc. By adding the Price and Number of any of the following Handles to the Price and Number of any Unhandled Axe (shown on pages 2 to 21 inclusive) the Price and Number of any desired Handled Axe may be obtained.

For example, if *KEEN KUTTER** Bronzed Yankee Single Bit Axes, No. 30, 3½ to 4½ lbs. (see page 2) are desired, fitted with Cumberland Octagon No. CXX, 4 inch Handles (No. Q, see page 24) order as "No. 100Q, 3½ to 4½ lbs." Always specify which of our regularly listed Weights is wanted, as shown under each Number of Unhandled Axes on pages 2 to 21.

For further Description of Handles see pages 647 to 651.

SINGLE BIT.

Genuine Hand-made, Second Growth White Hickory.

34 inch.

	Per Dozen
No. E4—*KEEN KUTTER**, No. KX34, Octagon	$10 00
No. F4—*KEEN KUTTER**, No. KR34, Oval	[illegible]

36 inch.

	Per Dozen
No. A—NONPAREIL*, No. NX36, Octagon	$12 [illegible]
No. B—COLORADO*, No. C36, Octagon	[illegible]
No. C—WYOMING*, No. W36, Oval	[illegible]
No. D—[illegible]*, No. [illegible], Octagon	8 [illegible]
No. E—*KEEN KUTTER**, No. KX36, Octagon	10 [illegible]
No. F—*KEEN KUTTER**, No. KR36, Oval	10 [illegible]
No. G—*KEEN KUTTER**, No. KN36, Oval	[illegible]

Hand Shaved Finish, Second Growth Hickory.

34 inch.

	Per Dozen
No. M4—CUMBERLAND*, No. CSA34, Oval	$5 00
No. J4—CUMBERLAND*, No. CSXX34, Octagon	[illegible]

36 inch.

	Per Dozen
No. H—CUMBERLAND*, No. CSXXX, Octagon	[illegible]
No. J—CUMBERLAND*, No. CSXX36, Octagon	[illegible]
No. K—CUMBERLAND*, No. CSX, Octagon	4 [illegible]
No. L—CUMBERLAND*, No. CSAA, Oval	[illegible]
No. M—CUMBERLAND*, No. CSA36, Oval	[illegible]
No. N—CUMBERLAND*, No. CSA, Oval	[illegible]
No. P—CUMBERLAND*, No. CXXX, Octagon	[illegible]
No. PH—CUMBERLAND*, No. CXXXX, Octagon, Heavy	5 50
No. Q—CUMBERLAND*, No. CXX, Octagon	4 [illegible]
No. QH—CUMBERLAND*, No. CXXX, Octagon, Heavy	[illegible]
No. R—CUMBERLAND*, No. CX, Octagon	4 50
No. RH—CUMBERLAND*, No. CHX, Octagon, Heavy	3 50
No. S—CUMBERLAND*, No. CAA, Oval	3 50
No. SH—CUMBERLAND*, No. CHAA, Oval, Heavy	[illegible]
No. T—CUMBERLAND*, No. CA, Oval	[illegible]
No. TH—CUMBERLAND*, No. CHA, Oval, Heavy	4 [illegible]
No. U—CUMBERLAND*, No. CL, Oval	3 [illegible]
No. UH—CUMBERLAND*, No. CHL, Oval, Heavy	3 50

Hand Shaved Finish, Second Growth Oak, 36 inch.

	Per Dozen
No. V—BLUE OAK*, No. A1R, Oval	$5 50
No. W—BLUE OAK*, No. B2R, Oval	3 50
No. X—BLUE OAK*, No. A1N, Oval	[illegible]
No. Y—BLUE OAK*, No. A1L, Oval	[illegible]
No. Z—BLUE OAK*, No. B2L, Oval	[illegible]

Hand Shaved Finish, Select Red Hickory, 36 inch.

	Per Dozen
No. AA—DELMAR*, No. DS6, Octagon	[illegible]
No. BB—DELMAR*, No. DR36, Oval	4.50

Hand Shaved Finish, Second Growth Hickory, 36 inch.

	Per Dozen
No. CC—MINNESOTA CHIEF*, No. MC4X, Oval	$5.00
No. DD—MINNESOTA CHIEF*, No. MC3X, Oval	4.00
No. EE—MINNESOTA CHIEF*, No. MC2X, Oval	3.00
No. FF—WISCONSIN*, No. R4X, Oval	5.00

SINGLE BIT.

Hand Shaved Finish, Second Growth Hkory, 36 inch.

	Per Dozen
No. GG—WISCONSIN*, No. R3X, Oval	$4 [illegible]
No. HH—WISCONSIN*, No. R4X, Oval	[illegible]
No. JJ—WISCONSIN*, No. L4X, Oval	[illegible]
No. KK—WISCONSIN*, No. L3X, Oval	4 50

Hickory, Machine-made, 40 in.

	Per Dozen
No. LL—KREOLE*, No. K10, Oval	$4 [illegible]
No. MM—KREOLE*, No. K20, Oval	5 50

Hickory, Machine-made, 36 in.

	Per Dozen
No. NN—LONE STAR*, No. LS, Octagon	$[illegible]
No. PP—STANDARD, No. SXXX, Octagon	[illegible]
No. QQ—STANDARD, No. SXX, Octagon	6 40
No. RR—STANDARD, No. SX, Octagon	5 20
No. SS—STANDARD, No. SXA, Oval	6 [illegible]
No. TT—STANDARD, No. SX, Oval	[illegible]
No. UU—STANDARD, No. S1, Oval	4 [illegible]
No. WW—STANDARD, No. S/2, Oval	3 50
No. XX—STANDARD, No. S/3, Oval	3.40

Straight Coal Axe, Hickory, 2 inch.

	Per Dozen
No. YY—COAL AXE, No. SCA, Oval	$2 50
No. ZZ—COAL AXE, No. SC, Oval	[illegible]

DOUBLE BIT.

Genuine Hand-made, Second Growth White Hickory, 36 inch.

	Per Dozen
No. DA—NONPAREIL*, No. NDX36, Octagon	$[illegible]
No. DC—*KEEN KUTTER**, No. KDX, Octagon	[illegible]
No. DE—*KEEN KUTTER**, No. KDL6, Oval	[illegible]

Hand Shaved Finish, Second Growth Hkory, 36 inch.

	Per Dozen
No. DF—CUMBERLAND*, No. CDXX, Octagon	$4 50
No. DG—CUMBERLAND*, No. CDAA, Oval	[illegible]
No. DH—CUMBERLAND*, No. CDA, Oval	[illegible]
No. DJ—CUMBERLAND*, No. CDL, Oval	[illegible]

Hand Shaved Finish, Second Growth Hickory, 36 inch.

	Per Dozen
No. DK—BLUE OAK*, No. B1RD, Oval	[illegible]
No. DL—BLUE OAK*, No. B2LD, Oval	[illegible]
No. DM—BLUE OAK*, No. A1NDB, Oval	5 00

Hand Shaved Finish, Second Growth Hkory, 36 inch.

	Per Dozen
No. DN—WISCONSIN*, No. DB4X, Oval	$4.50
No. DO—WISCONSIN*, No. DH3X, Oval	4 00

Hickory, Machine-made.

	Per Dozen
No. DP—STANDARD, No. SDXXX, 38 in. Octagon	$7.90
No. DR—STANDARD, No. SDAA, 36 in., Oval	6 75
No. DS—STANDARD, No. SDA, 36 in., Oval	5 50

One Dozen Complete in a Crate.

We strongly recommend use no grade lower than a No. SXX Octagon, or a No. SA Oval Handle used in our better grade Axes. A lower grade Handle will Cheapen the Appearance of the Axe, and is almost sure to be unsatisfactory.

HARNESS AND SUNDRIES

When you Buy Saddlery from us you are Buying Direct from the Factory.

COLLARS AND SADDLES

KEEN KUTTER and Other **FACTORIES** Owned and Controlled by Us

Water Power from these Falls used to run our *KEEN KUTTER* Tool Factory.

The Cheapest Kind of Power in the World.

Location of one of our *KEEN KUTTER* **Tool** Factories in New Hampshire

Our *KEEN KUTTER* Pocket Knife Factory

Where *KEEN KUTTER* Pocket Knives are made. New York State.

The Largest Factory of its kind in the United States.

WHEN you buy SADDLERY from us, you buy

direct from the makers.

We are the Largest Manufacturers and Distributers of Harness and Saddlery in the United States.

Axe Handling Department.

Views of our Axe Handling Department show its complete equipment in the way of fine machinery, which enables us to handle axes more perfectly than anyone else in the world.

This machinery is built from our own designs and is absolutely unique and different from that in any other shop in existence.

The first idea in selling handled axes was originated by Mr. E. C. Simmons, and out of it grew our Axe Handling Department.

Our handled axes are perfectly hung by expert workmen who are trained for this particular line of work. They are perfect in every way and the heads will never fly off on account of the Greiner Patent Everlasting Wedge used on our axes.

ALWAYS BUY HANDLED AXES.

A Busy Corner of Our Axe Handling Department.

We can 'handle' axes in our Axe Handling Department **better** than any one else, because our equipment consists mostly of our own inventions which are the result of the needs arising from **long experience.**

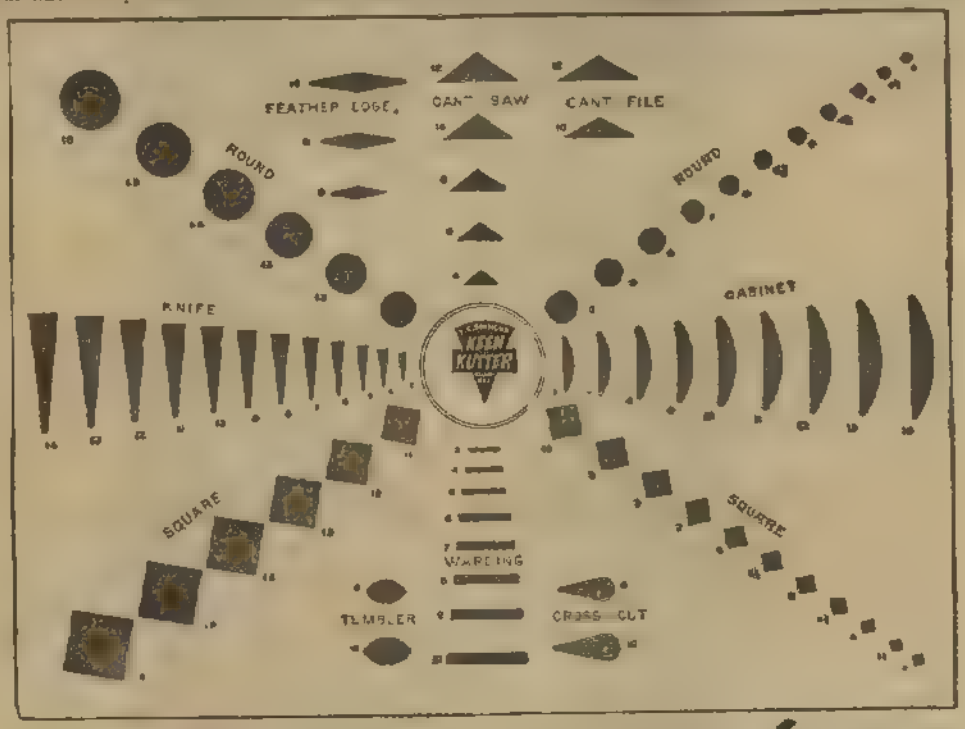
Those employed in our Axe Handling Department have had **experience** with this particular kind of machinery, and are **experts in their line.** Anyone else installing a 'Handling' Department must go through years of experience in order to get just the right machinery and the experience which enables them to "handle" axes as perfectly as they are "handled" in our Department. All axes 'handled' by us have the Grellner Patent Lock Wedge and, considering its advantages over any other wedge coupled with the accuracy and perfection with which our axes are 'hung,' we are entitled to the handled-axe business by right of **merit.**

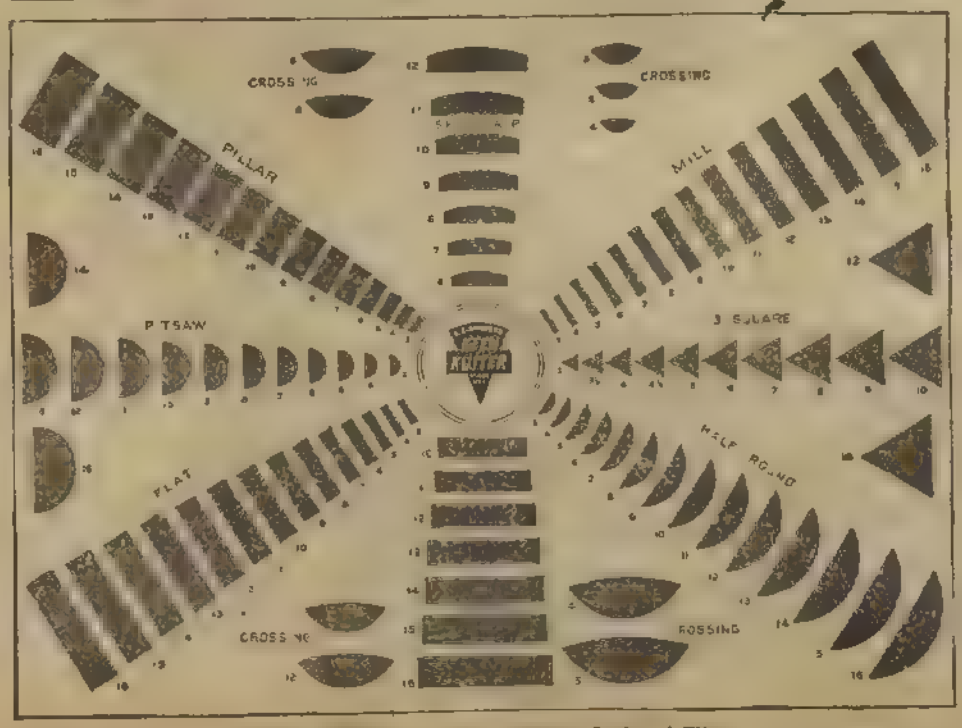
Remember: In 'handling' axes, the right kind of **machinery** (which is the **result of experience**) and experienced workmen, are absolutely necessary. We have both

GENERAL DESCRIPTION OF FILES AND RASPS.- Continued

SAFE EDGE, OR SIDE—Terms used to denote that a File has one or more of its Edges or Sides Smooth or Uncut, that it may be presented to the work without injury to that portion which does not require to be Filed

RE-CUT OR RE-CUTTING—The Working Over of Old or Worn Out Files by the Several Processes of Annealing, Grinding out of the Old Teeth, Re-Cutting, Hardening, etc., and thus again preparing them for use. This Action is sometimes Repeated Two and even Three Times, but the economy of Re-Cutting at all is very much questioned, and the practice is done away with in most of the best appointed shops of the present day.





Showing Sectional View of Different Styles of Files

TRADE MARKS:
E. C. SIMMONS' *KEEN KUTTER*,
CHIPAWAY
REGISTERED.

FILES.

KEEN KUTTER Files for Uniformity of Pattern, Perfection in Selection, Toughness in Temper and Satisfaction in Using have no equal.

*KEEN KUTTER**

Forged from Highest Grade Crucible Steel Natural Gas Tempered which gives the Metal a peculiar Hardening and Toughness, Cut on the Latest Improved Machines, Carefully Tested and Selected.

CHIPAWAY*

Forged from Special Crucible Steel; Natural Gas Tempered; Tested and Selected.

NICHOLSON'S AND BLACK DIAMOND.

Forged from Tool Steel, Tempered; Tested and Selected.

ECONOMY OR ROYAL.

Second Quality; Forged from Tool Steel, Tempered
Economy or Royal Files, we carry only Mill Bastard.

E. C. Simmons' *KEEN KUTTER Carpenters' Special Slim Taper.**

Especially designed for Filing Panel, Hack, Butchers', Scroll and other fine tooth Saws, having a special thin edge and fine cuts.

Inches	3	3½	4	4½	5	5½	6	7	8
Weight per dozen about, lbs.	⅓	¼	⅓	⅜	½	½	¾	1	1⅜
Per dozen	$2.10	2.10	2.20	2.30	2.50	2.90	3.10	3.80	4.50

Regular Taper Saw, Single Cut.

Especially Designed for Filing Hand Saws.

Inches	2½	3	3½	4	4½	5	5½	6	7	8	10
Weight per dozen about, lbs.	¼	½	½	¾	1	1¼	1¾	2	3	4¼	7
*KEEN KUTTER**, per dozen	$2.10	2.10	2.10	2.20	2.40	2.60	3.00	3.40	4.30	5.40	8.10
CHIPAWAY*, per dozen	2.10	2.10	2.10	2.20	2.40	2.60	3.00	3.40	4.30	5.40	8.10
Nicholson's, per dozen	....	2.10	2.10	2.20	2.40	2.60	3.00	3.40	4.30	5.40	8.10

Slim Taper Saw, Single Cut.

Especially Designed for Filing Hand Saws.

Inches	3	3½	4	4½	5	5½	6	7	8	10
Weight per dozen about, lbs.	¼	¼	½	½	½	¾	1¼	2	3½	7½
*KEEN KUTTER**, per dozen	$2.10	2.10	2.20	2.30	2.50	2.90	3.10	3.80	4.50	6.40
CHIPAWAY*, per dozen	2.10	2.10	2.20	2.30	2.50	2.90	3.10	3.80	4.50	6.40
Nicholson's, per dozen	2.10	2.10	2.20	2.30	2.50	2.90	3.10	3.80	4.50	....
Black Diamond, per dozen	2.10	2.10	2.20	2.30	2.50	2.90	3.10	3.80	4.50	....

KEEN KUTTER and CHIPAWAY -ONE DOZEN IN A WOOD BOX.

NICHOLSON'S and BLACK DIAMOND—One Dozen in a Cardboard Box.

TRADE MARKS:
E. C. SIMMONS KEEN KUTTER
AND CHIPAWAY
REGISTERED.

BROAD AXES.

Soft Steel Body; Crucible Forged Steel Bit; Gold Bronzed, with Polished Head and Bit.

PEERLESS—CANADA PATTERN.

Nos.	PC67	PC78	PC89
Weights in a Box, Assorted, lbs.	6 to 7	7 to 8	8 to 9
Width of Cutting Edge, inches	10½ to 11½	11½ to 12½	12½ to 13½
Weight per dozen about, lbs.	90	102	114
Per dozen	$44.00	46.00	48.00

PEERLESS—PITTSBURG PATTERN.

Nos.	PP67	PP78
Weights in a Box, Assorted, lbs.	6 to 7	7 to 8
Width of Cutting Edge, inches	11 to 12	12 to 13
Weight per dozen about, lbs.	90	102
Per dozen	$32.00	35.00

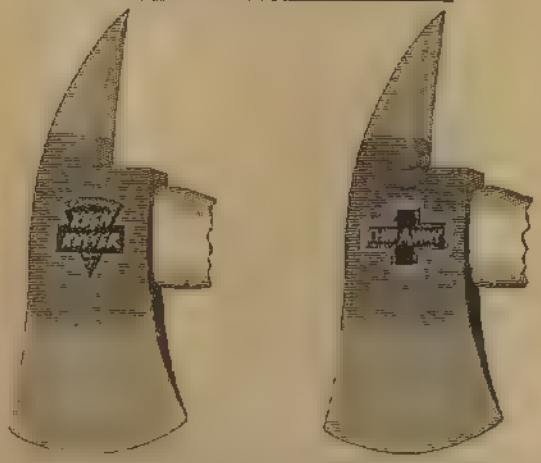
One-half Dozen in a Box.

BARTON—CANADA PATTERN

Nos.	BC78	BC89
Weights in a Box, Assorted, lbs.	7 to 8	8 to 9
Width of Cutting Edge, inches	11 to 12	12 to 13
Weight per dozen about, lbs.	110	122
Per dozen	$45.00	45.00

One-half Dozen in a Box.

FIREMEN'S AXES.



Soft Steel Body; Forged Polished Bit and Pick Point, Carefully Tempered; Handled with 36 inch Oval Hickory Handle; Fastened with GRELLNER PATENT WEDGE.

Per Dozen

No. KF6—*KEEN KUTTER** Highest Grade Crucible Steel Bit; Gold Bronzed Body; Weight each 6 lbs.; with Extra Quality Handle; Length of Head 13 inches; Length of Point 3½ inches; Width of Cut 5¼ inches; Weight per dozen about 115 lbs. $36.00

No. CF6—CHIPAWAY* Special Crucible Steel Bit; Fire Bronzed Body; Weight each 6 lbs.; with Excelsior Quality Handle; Length of Head 13 inches; Length of Point 3½ inches; Width of Cut 5¼ inches; Weight per dozen about 115 lbs. 30 00

One-half Dozen in Crate.

SHIP AXES.

Soft Steel Body; Highest Grade Crucible Forged Steel Polished Bit, Carefully Tempered; Hardened Poll; Gold Bronzed Body, with Polished Head; Not Handled.

Per Dozen

No. KKS—*KEEN KUTTER**; Assorted 5 to 6 lbs.; Length, Poll to Bit, Assorted, 10 to 11 inches; Width of Cut, Assorted, 6 to 6½ inches; Weight per dozen about 75 lbs. $30.00

One Dozen in a Wood Box.

COAL AXES.

RED COAT*—DAYTON PATTERN.

Soft Steel Body; Hardened Poll; Crucible Forged Steel Tempered Raised Bit; Body Painted Red; Polished Bit.

No. 1200ZZ—RED COAT*, with No. SC2, Medium Quality, 28 inch Oval Straight Handles.

Weights in a Box, Assorted, lbs.	3 to 4	3½ to 4½
Weight per dozen about, lbs.	60	65
Per dozen	$10.00	10.25

No. 1200YY—RED COAT*, with No. SCA, Select, 28 inch, Oval Straight Handles.

Weights in a Box, Assorted, lbs.	3 to 4	3½ to 4½
Weight per dozen about, lbs.	60	65
Per dozen	$15.00	15.25

One Dozen in a Box.

TRADE MARKS:
E. C. SIMMONS' *KEEN KUTTER*
CHIPAWAY AND "OZARK,"
REGISTERED.

ADZES.

HOUSE CARPENTERS', HALF HEAD.

Edges are Specially Ground to a Keen Edge.

Soft Steel Body; Highest Grade Crucible Forged Steel Bit, Extra Tempered; Steel Faced Head, Gold Bronzed Body; Polished Head and Bit; Solid Punched Eye.

Soft Steel Body; Special Forged Crucible Steel Polished Bit, Carefully Tempered; Steel Faced Polished Head; Fire Bronzed Body; Solid Punched Eye.

*KEEN KUTTER**—CARPENTERS' ADZES.

Nos.	KC3½	KC4	KC4½
Width of Cut, inches	3½	4	4½
Length, inches	9	9	9
Weight per dozen about, lbs.	48	50	53
Per dozen	$30.00	30.00	30.00

HUNT'S—CARPENTERS' ADZES.

Gold Bronzed Soft Steel Body; Crucible Forged Steel Tempered Bit; Polished Head and Bit.

No.	HC4½
Width of Cut, inches	4½
Length, inches	9⅜
Weight per dozen about, lbs.	50
Per dozen	$24.00

CHIPAWAY*—CARPENTERS' ADZES.

Nos.	CC3½	CC4	CC4½
Width of Cut, inches	3½	4	4½
Length, inches	[illegible]	9	9½
Weight per dozen about, lbs.	46	50	57
Per dozen	$24.00	24.00	24.00

BARTON'S—CARPENTERS' ADZES.

Soft Steel Body, Painted Blue; Crucible Forged Steel Tempered and Polished Bit.

No.	BC4½
Width of Cut, inches	4 to 4½
Length, inches	9½
Weight per dozen about, lbs.	54
Per dozen	$24.00

One-half Dozen in a Wood Box.

RAILROAD, FLAT HEAD.

Edges are Specially Ground to a Keen Edge.

Soft Steel Body; Highest Grade Crucible Forged Steel Bit, Extra Tempered; Steel Faced Head; Gold Bronzed Body; Polished Head and Bit; Solid Punched Eye.

Soft Steel Body; Special Crucible Forged Steel Polished Bit, Carefully Tempered; Steel Faced Polished Head; Fire Bronzed Body; Solid Punched Eye.

*KEEN KUTTER**—RAILROAD ADZES.

No.	KR5
Width of Cut, inches	5
Length, inches	9
Weight per dozen about, lbs.	60
Per dozen	$32.00

CHIPAWAY*—RAILROAD ADZES.

No.	CR5
Width of Cut, inches	5
Length, inches	9
Weight per dozen about, lbs.	67
Per dozen	$26.00

OZARK*—RAILROAD ADZES.

Solid Cast or Converted Steel, Natural Black Finish.

No.	OR5
Width of Cut, inches	5
Length, inches	9
Weight per dozen about, lbs	67
Per dozen	$22.00

One Dozen in a Wood Box.

TRADE MARK:
E. C. SIMMONS' KEEN KUTTER.
REGISTERED.

PUNCHES.

Ticket and Conductors'

Highest Grade Goods made with Steel Dies and Plungers, Fitted with Extreme Care.

KEEN KUTTER

Per Dozen

No. 50—KEEN KUTTER*; Nickel Plated Cast Steel Frame; Steel Joint-Screw and Plunger; Flat Tempered Steel Main Spring, attached with Screw; Length of Reach ⅞ inch; Length over all 5 inches; Assorted Fancy Pattern Dies; Weight per dozen about 3 lbs. $15.00

KEEN KUTTER

Nickel Plated Cast Steel Frame; Steel Joint-Pin and Plunger; Flat Tempered Steel Main Spring, attached with Screw; Assorted Fancy Pattern Dies. Per Dozen

No. 65—KEEN KUTTER*; Tempered Steel Inserted Die, Length of Reach 1 inch; Length over all 4⅝ inches; Weight per dozen about 3 lbs. $20.00

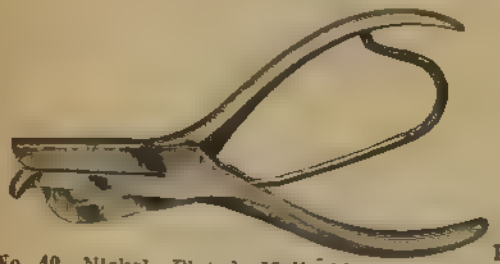
No. 75—KEEN KUTTER*; Tempered Steel Die, Dovetailed in Frame; Length of Reach 1⅛ inches; Length over all 4⅝ inches; Weight per dozen about 3¼ lbs. 36.00

Per Dozen

No. 2—Nickel Plated Cast Steel Frame; Steel Joint-Screw and Plunger; Steel Coil Main Spring; Finger Ring on Handle; Length of Reach ⅞ inch; Length over all 5 inches; Assorted Fancy Pattern Dies; Weight per dozen about 3¼ lbs. $17.00

Per Dozen

No. 435—Nickel Plated Cast Steel Frame; Steel Joint-Pin and Plunger; Tempered Steel Inserted Die; Tempered Steel Wire Main Spring, Riveted to Handle; Length of Reach ⅞ inch; Length over all 4½ inches; Assorted Pattern Dies; Weight per dozen about 2¾ lbs. $12.00



Per Dozen

No. 40—Nickel Plated Malleable Iron Frame, Steel Joint-Pin and Plunger; Tempered Steel Wire Main Spring, Riveted to Handle; Length of Reach ⅞ inch; Length over all 4½ inches; Assorted Pattern Dies; Weight per dozen about 2¼ lbs. $11.00

Per Dozen

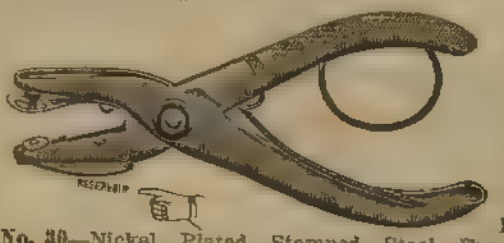
No. 34—Polished Malleable Iron Frame; Steel Joint-Pin and Plunger; Tempered Steel Wire Main Spring, Riveted to Handle; Length of Reach ⅞ inch; Length over all 4½ inches; Assorted Pattern Dies: Weight per dozen about 2¼ lbs. $7.00

One-half Dozen in a Cardboard Box.

Per Dozen

No. 33—"PARAGON"; Nickel Plated Stamped Steel Frame; Scored Handles; Steel Die and Plunger; Steel Wire Main Spring with Finger Ring; Length of Reach 1 inch; Length over all 4⅝ inches; Assorted Pattern Dies; Weight per dozen about 1¾ lbs. $4.25

One-half Dozen in a Cardboard Box.



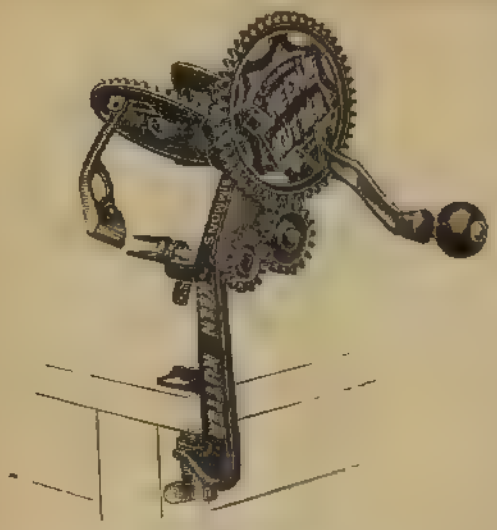
Per Dozen

No. 30—Nickel Plated Stamped Steel Frame; Scored Handles; Steel Die and Plunger; Steel Wire Main Spring with Finger Ring; Reservoir attachment retains the particles punched from tickets, can be emptied when desired; Length of Reach 1 inch; Length over all 5 inches; Assorted Pattern Dies; Weight per dozen about 1¾ lbs. $4.00

One Dozen in a Cardboard Box.

TRADE MARK:
E. C. SIMMONS' *KEEN KUTTER*.
REGISTERED.

APPLE PARERS.

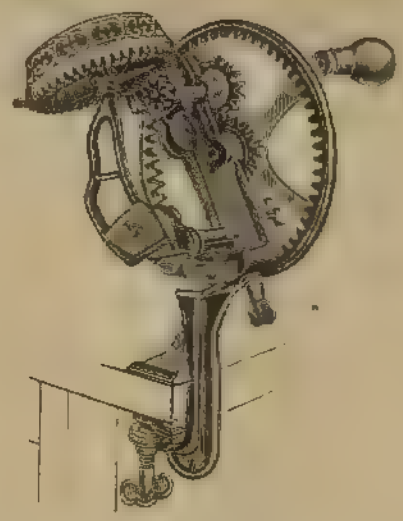


***KEEN KUTTER**.**

Per Dozen

No. 10—*KEEN KUTTER.** Cast Iron Frame and Gear; Black Enameled Wood Handle; Natural Finish Oil Tempered, Highest Grade Crucible Steel Adjustable Blade; Automatic Push-Off; Coppered Steel Wire Coil Spring on Knife Arm; Finished entirely in Dark Rust-Proof Lacquer; Height over all 10 inches.....$13.00

One Dozen in a Case; Weight per Case about 46 lbs.

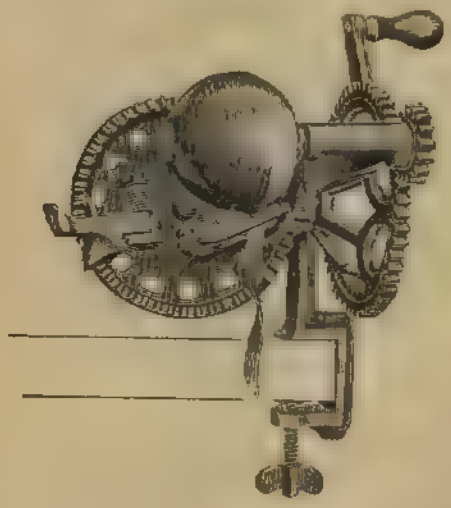


READING.

Per Dozen

No. 1878—Cast Iron Frame and Gear; Enameled Wood Handle; Tempered Blue Finish Steel Adjustable Knife; Automatic Push-Off; Coppered Steel Wire Coil Spring on Knife Arm; Height over all 11 inches; Finished in Rust-Proof Blue Lacquer; Weight per Dozen about 70 lbs.....$11.50

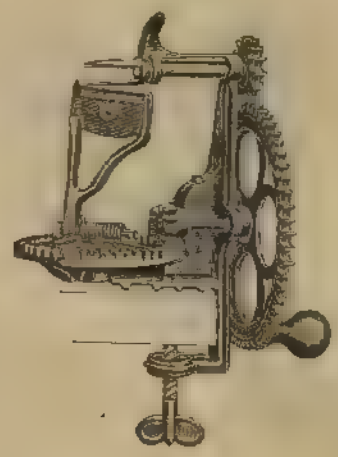
One-twelfth Dozen in a Cardboard Box; One Dozen in a Case.



ROCKING TABLE.

Per Dozen

No. R—Cast Iron Frame and Gear; Black Finish Wood Handle; Tempered Blue Finish Steel Adjustable Knife; Automatic Push-Off; Coppered Steel Wire Coil Springs on Knife and Push-Off Arm; Height over all 7 inches; Finished in Rust-Proof Blue Lacquer; Weight per dozen about 40 lbs.. .. .. $8 25



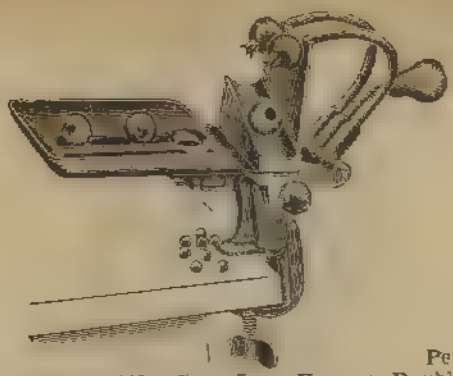
EXPERT.

Per Dozen

No. 22—Cast Iron Frame and Gear; Plain Wood Handle; Tempered Blue Finish Steel Adjustable Knife; Automatic Push-Off; Coppered Steel Wire Coil Spring on Knife Arm; Height over all 9 inches; Finished in Rust-Proof Blue Lacquer; Weight per dozen about 50 lbs.... $5.50

One Dozen in a Case.

CHERRY STONERS.



Per Dozen

No. G—GOODELL'S; Cast Iron Frame; Double-Grooved Feed Table and Clamp, Lacquered; Two Hinged Steel Seeding Plungers, Forked Ends, with Handle and Stained Wood Knob, working through Two Holes in Feed Table, with Leather Cleaning Washers; Sheet Steel Sweep Plate, which drops Stoned Cherries on Hardwood Stained Grooved Chute to Carry to a Dish at the Side; Height above Table 5½ inches; Height over all 8 inches; Length 6½ inches; Clamp opens $1^{13}/_{16}$ inches; Weight per dozen about 23½ lbs. $6.00

One Dozen in a Case.

NOTE.—The No. G Stoner does not crush or disfigure the fruit. Will Stone about 6 Quarts of Cherries per hour

ENTERPRISE; Cast Iron, with Tinned Clamp Screw and Adjustable Sweep Plate; Ridged Feed or Force Wheel 4⅝ inches diameter; Cast Iron Crank; Front Discharge Spout; Height over all 12½ inches; Length 10 inches; Hopper 4x3½ inches; Clamp opens 1¾ inches.

Per Dozen

No. 1—JAPANNED; Weight per dozen about 51 lbs. $7.50

No. 2—TINNED; Weight per dozen about 54 lbs. . 8.50

Two Dozen in a Case.

NOTE.—The Enterprise Stoners work very rapidly.

CHERRY STONERS.

Per Dozen

No. R—ROLLMAN; Cast Iron Frame, Feed Table and Clamp, Tinned; Spring Plunger 6 inches Long, working in Grooved Frame, Forcing Seed Through Single Hole in Feed Table, with Rubber Cleaning Washer; Cross Piece Sweeps Stoned Cherries into Dish, apart from Seeds; Height over all 14 inches; Length 8 inches; Clamp opens $1^{11}/_{16}$ inches; Weight per dozen about 32 lbs. $12.00

One-half Dozen in a Case.

No. RW—EXTRA RUBBER WASHERS, ¾x1 inch for Above; Weight per dozen about 3 ounces $0.60

One Dozen in an Envelope.

NOTE.—The No. R Stoner does not Crush or Disfigure the Fruit. Will Stone 30 Quarts of Cherries per hour.

RAISIN SEEDERS.

Per Dozen

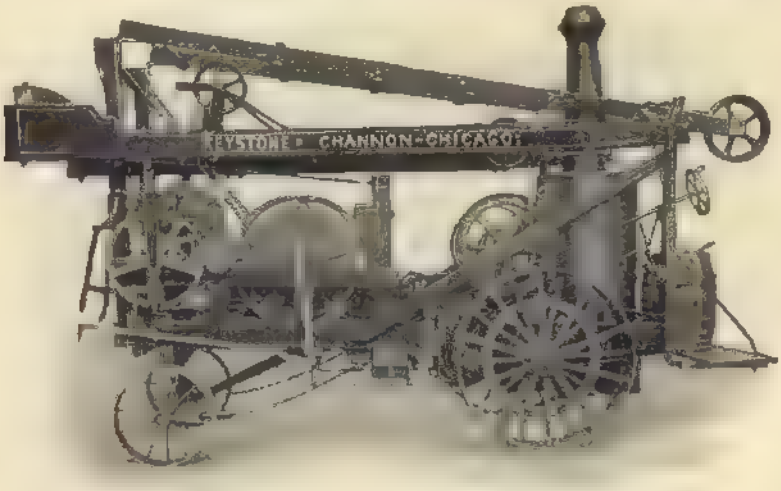
No. 36—ENTERPRISE; Cast Iron Frame, Hopper, Crank and Clamp, Tinned; Eleven Toothed Steel Wheels, with Steel Finger Plates between, working against Adjustable Rubber Pressing Roll, 1 inch Wide; Front Discharge Spout; Height over all 11½ inches; Length 7½ inches; Hopper 2½x2 inches; Clamp Opens 1½ inches; Weight per dozen about 32 lbs. $15.00

Two Dozen in a Case.

NOTE.—The No. 36 Seeder works to best advantage if the Raisins are wet, and fed into Hopper one at a time. Will also seed Grapes for Preserving or Cooking. Will Seed about 12 lbs. of Raisins per hour.

MINERAL PROSPECTING MACHINES.

FOR EXPLORING PLACER GOLD MINES, TESTING FOR COAL, LEAD, ZINC, IRON, ETC., AND FOR MAKING SOUNDINGS FOR BRIDGE PIERS, FOUNDATIONS, ETC.



Above illustration shows No. 3 Traction (self-propelling) Placer Testing Machine stripped of derrick and tools.

PLACER TESTING OUTFITS.

No.	Style	Depth, Feet: Friction Hoist	Depth, Feet: Cog Hoist	Weight Lbs.	Net Price	Weight, Boxed for Ocean Shipment	Net Extra for Boxing
1 P	Non-Traction	250	.....	7000	$1300.00	9000 Lbs.	$75.00
3 Q	Traction	350	500	13000	1630.00	15000 "	95.00
3 R	Non-Traction	350	500	10000	1420.00	12000 "	85.00
3 S	Without Power	350	500	7000	1010.00	9000 "	65.00
1 T	Sectional	250	.....	8000	1420.00	10000 "	85.00

Extras: Drive pipe and extra couplings and drive shoes for pipe are not included in above prices, for the reason that amounts required may vary with different localities. Prices quoted upon request.

MINERAL PROSPECTING MACHINES.

No.	Style	Depth, Feet: Friction Hoist	Depth, Feet: Cog Hoist	Weight Lbs.	Net Price	Weight Boxed for Ocean Shipment	Net Extra for Boxing
3 A	Traction.	350	500	12000	$1575.00	14000 Lbs.	$95.00
3 B	Non-Traction	350	500	9500	1360.00	11500 "	85.00
3 C	N. T. No Power	350	500	6500	1025.00	8500 "	70.00
4 D	Traction	400	800	14000	1670.00	16000 "	100.00
4 E	Non Traction	400	800	10500	1460.00	12500 "	90.00
4 F	N. T. No Power	400	800	8000	1125.00	10000 "	70.00

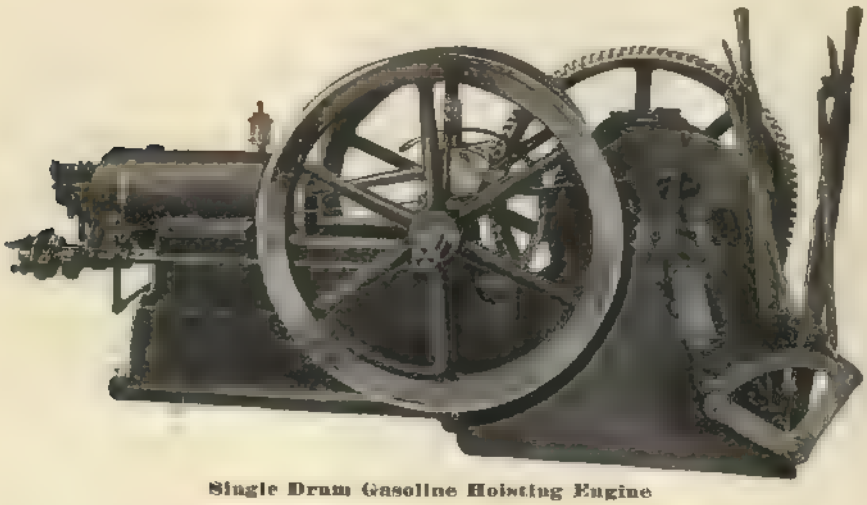
Extras: When wanted for coal testing, add one 3-inch center bit 8 ft. long, $20.00; one 5½ or 6-inch shearing bit, $20.00; one 3-inch vacuum sand pump, $9.00 net extra.

For Complete Description of all of Above Machines ask for "PROSPECTING MACHINE CATALOG."

We are also prepared to furnish "Oil Well Rigs," Portable and Traction, for Oil, Gas or Water Wells. Send for Complete Catalog.

Be Sure and State Conditions, Character and Depth of Drillings.

GASOLINE HOISTING ENGINES



Single Drum Gasoline Hoisting Engine

OPERATE ON	H. P.	Stroke Inches	Bore Inches	Drum Diam. Face	Capacity of Drum	Size Rope	Rope Speed ft. per min.	Lifting Capacity at Rope Speeds	Weight
Gas,	6	4 x 7 ft.	40	18x13	900 ft.	1-2	175	800 lbs	3000
Gasoline,	8	4 x 7	40	18x13	900	1-2	175	1050	3800
Distillate,	10	4½x 8½	48	20x15	1200	5-8	225	1000	5000
	12	4½x 8½	48	20x15	1200	5-8	225	1200	5500
Benzine,	15	4½x 8½	48	20x15	1200	5-8	225	1500	6500
Naptha,	20	6 x10	60	24x20	1500	5-8	250	1800	7500
	25	6 x10	60	24x20	1500	5-8	250	2300	8000
Crude Oils.	30	7 x12	65	30x24	2000	3-4	300	2200	11000
	40	7 x12	65	30x24	2000	3-4	300	3000	12000

Specifications and quotations on sectionalized, Double Drum, or larger Hoists upon request. Following extras can be furnished: Depth Indicators, Self Starter, Water Pump attachment, Drive Pulley for Blower or other work.

Before leaving factory all engines are tested by the brake and are operated under a shop load from two to eight days according to size. Our horse power ratings are based on what the engine can pull and do it easily—not the greatest possible pull it is capable of doing for a few minutes only. Our ideal of a horse power is 33,000 pounds raised one foot high per minute, and a 10 to 15 per cent surplus as a factor of safety for the makers.

With every engine we furnish both the electric and tube igniters, battery, spark coil and box, water circulating tank, gasoline tank, bundle of piping of all sizes, exhaust muffler, brass sight feed lubricators, oil and grease cups, switch for battery, one can lubricating oil, one can of grease, foundation bolts, set of wrenches, shut-off and drain cocks, blue prints for foundation and erecting, and the most complete illustrated instruction book showing every part of the engine, numbered and so listed that repairs may be ordered easily and quickly. A set sheet of asbestos packing and asbestos for gasoline pump.

Unconditionally Guaranteed. Any part of the engine that shows a defect will be replaced at the factory free within five years, but we are not responsible for accidents or carelessness.

The workmanship and material are of the best, and the engine is finished as only a high class engine should be finished: enameled in Brewster green, and all steel parts polished.

Complete Mine outfits, including Gasoline, Steam or Electric Hoists, quoted promptly upon request.

KNOX STOCK CARS

Win Laurels in Vanderbilt Cup Race

First and Second Stock Cars

Knox 38 H. P. Model "O" in sixth and Model "M" 48 H. P. in seventh position, and running on the tenth lap at the finish. Beaten only by three 120 H. P. and one 115 H. P. specially built racing cars, and a foreign made 60 H. P. car.

In contests of 1908, Knox cars have defeated 165 cars, including all makes, regardless of power, number of cylinders or selling price.

THIRD in Lowell, Mass., 250-Mile Race, Sept. 7, 1908

SECOND in Garden City Sweepstakes 200 Mile Race on Vanderbilt Course, October 10th

MODEL "O" TONNEAUETTE
Price, $2950

Send for catalogue and information on Knox in Vanderbilt and contests of 1908

KNOX AUTOMOBILE CO., Springfield, Mass.

Member A. L. A. M.

To the Knowing Dealer:

The virtue that men appreciate most is promptness. Explanation after disappointment is almost equivalent to insult. If you want to be sure of all your promises, try our instant service. Anything not in stock will be wired to you from the factory the hour we get your order.

The Autolight & Motor Supply Company, Inc.

PAUL P. RIPPIEN, General Manager,

Broad and Spring Garden Streets, Philadelphia

An Experience

A Board of Trade man in Chicago was about to order a high-priced car. He happened to hear of the Speedwell and decided to look at one before ordering the other car. A thorough examination of the Speedwell astonished him. The size of the car, the beauty of the design, the richness of the finish, the fine workmanship displayed throughout, all these surprised and delighted him. A ride in the car was a further revelation, as he found it quiet, smooth running and with such perfect riding qualities, that it lived up to its reputation of "riding like a cradle." This man at once placed his order for a 1909 Speedwell. He saved $1,000 and secured the *best* Motor Car on the market.

The 1909

Speedwell

Always makes good wherever it is shown. It is the surprise of the Automobile World.

Price $2,500 completely equipped

It is of 40-45 horse power, 120 inch wheel base, construction throughout of heat-treated alloy steel, double ignition with Bosch magneto, Timken roller bearings used in axles, transmission, and steering knuckles. The best material and workmanship that were ever combined to produce a *perfect car.*

The "Speedwell Price" is the highest price that should be paid for the Best Motor Car Built, and the Speedwell is "the best that *can* be built."

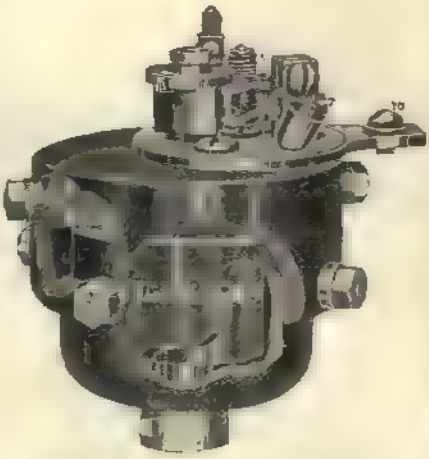
* * *

No matter what kind of an automobile you are thinking of buying, you owe it to yourself to get full particulars of this remarkable Motor Car, before you finally decide.

Speedwell Motor Car Company
Dayton, Ohio

High-class representatives can secure a few excellent territories by making prompt application.

MONITOR Distributer



Absolutely perfect timing. Hottest possible spark. Lowest battery consumption.

Demonstrated to be the most effective, most durable, surest and most reliable distributer on the market.

New specially designed insulation material, absolutely waterproof and heatproof; a vast improvement over hard rubber and wood fibre.

Built for hard, continuous and most efficient service.

Bemus Timer

Compact, strong and efficient.

The ball contacts make positive contacts inevitable, during the life of the the balls.

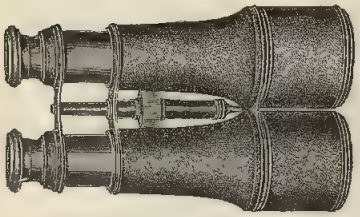
These will last for at least 5000 miles, and many have been used for 12,000 miles without removal.

The slight revolution of the balls at each contact ensures a fresh surface for the next contact, and uniform wear of entire surface of each ball. **Long, effective service is assured.**

Send for free Booklet.

MONITOR MANUFACTURING CO.
6 Pelham Street BOSTON, MASS.

FIELD GLASSES



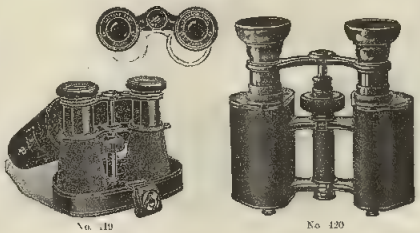
LEMAIRE'S

No		Each
219	19 lenses	$17 50
221	21 "	19 00
224	24 "	22 00
226	26 "	24 00

COLMONT BRAND

No		Each
321	19 lenses	$11 26
324	24 "	12 00
326	26 "	13 00

BINOCULAR



No. 419 No. 420

No. 419 A well constructed and very powerful field glass, combining compactness with large field of vision and great power; by a point in the bar, shown in the accompanying cut it is adjustable for different pupillary widths, we recommend it as specially desirable for a bird glass, complete in sole leather case, with strap — Each $14 00

No. 420 Magnifies 7 times, at 1000 yards the field of view is 125 yards. Has sufficient magnifying power for general use as a field glass for watching racing games yachting, ocean travel or the every-day use of the tourist on the mountains or in the seashore is especially recommended for regions where hazy, foggy, and rainy weather is frequent, a case of stout leather, velvet lined, is furnished with each glass, outside carrying strap, adjustable shoulder strap attached to the glass itself — Each $46 00

WATCHES

THE NEW MODEL INGERSOLL WATCHES

A discount of 5 cents a watch will be made when 3 dozen of one kind or assorted kinds are ordered

The Dollar Stem Wind

	Per doz.
Yankee nickel, stem wind and stem set	$18 72
Yankee Ox, stem wind and stem set, oxidized	19 92

Many of the articles in this list are intended for holiday sales and such goods it is impracticable to keep a complete assortment throughout the entire season. In ordering near the close of the holiday season, or after it is over, it would be well to give us permission to send the nearest we have to the article ordered, should it not be in stock. In most instances the different in appearance and price would be slight

	Per doz
Triumph, beautifully finished, solid white metal case, quadruple silver-plated	$29 96
Triumph Ox, same watch, oxidized	31 20

Eclipse

	Per doz.
Eclipse, solid nickel case, stem wind and stem set	$24 96
Eclipse Ox, solid nickel case, oxidized, stem wind and stem set	26 24

Midget

	Per doz
Midget, girls' size solid nickel case, porcelain dial, stem wind and stem set	$33 70
Midget Ox, same watch, oxidized finish	35 00

"Thin Model" Ingersoll

A brand-new watch for those who want an especially thin watch

	Per doz
Junior, solid silver, stem wind and stem set	$33 70
Junior, gun-metal finish	35 00

BRASS CUSPIDORS

Made of fine spun brass, highly polished, each in box

No. 10 No. 12 No. 11 No. 13

No.		Per doz.
10	Self-rigting, diameter 7¾ inches, height 4½ inches	$12 00
11	" " " 8 " 5½ "	16 00
12	" loaded base, diameter 8 inches, height 6 inches	24 00
13	Removable top fitted with extra inside pad, diameter 7 inches, height 4 inches	27 00

No. 14 No. 15 No. 16

No.		Per doz.
14	Loaded base, self-rigting, diameter 8 inches, height 7 inches	$36 00
15	" " " 8½ " " 7 "	42 00
16	Heavy loaded base, self-rigting, diameter 8½ inches, height 11 inches	48 00

OPERA GLASSES AND TELESCOPES

Opera Glasses and Telescopes are measured according to the diameter of the object glass in French Lignes, which correspond with English inches, as follows: 11 lignes 1 inch, 13 lignes=1⅛ inches, 15 lignes=1½ inches, 17 lignes=1½ inches, 19 lignes=1⅝ inches.

OPERA GLASSES Each in leather case

Morocco body

Pearl, with metal tubes

Pearl, with pearl tubes

Black morocco body, black tubes and trimmings

No.		Each
11	11 lignes	$8 00
13	13 "	8 50
15	15 "	9 10
17	17 "	10 30

Black calf, japanned, gilt tubes and rims

21	11 lignes	8 50
23	13 "	9 00

Black morocco, japanned bars, gilt mountings

31	11 lignes	11 10
33	13 "	11 60

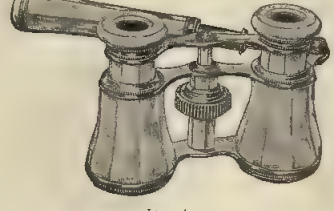
White pearl body, gilt trimmings and tubes, pearl tops and screws

41	11 lignes	16 40
43	13 "	17 70
45	15 "	19 30

Black morocco body, black tubes and trimmings

No.		Each
112	12 lignes	$4 50
115	15 "	5 50
117	17 "	6 00

WITH HANDLES



Lemaire's

No.		Each
83	13 lignes, white pearl, gilt tubes and trimmings, pearl screw and tops, pearl extension handle to match	$34 20
93	Same as No. 83, oriental pearl	34 20

Ballard Brand

No.		Each
144	14 Lignes, white pearl body, gilt tubes and trimmings, pearl screw and tops, extension handle to match	$18 50
154	Same as No. 144, oriental pearl	18 50

LEMAIRE'S

Oriental pearl body, gilt trimmings and tubes, pearl tops and screws

No.		Each
51	11 lignes	$16 40
53	13 "	17 70
55	15 "	19 30

White pearl body, pearl tubes, tops and screws

61	11 lignes	19 30
63	13 "	20 70

Oriental pearl body, pearl tubes, tops and screws

71	11 lignes	19 30
73	13 "	20 70

COLMONT'S BRAND

White pearl body, gilt tubes and trimmings

No.		Each
122	12 lignes	$11 50
124	14 "	12 30

Oriental pearl body, gilt tubes and trimmings

132	12 lignes	11 50
134	14 "	12 30

TELESCOPES

No.	Diam. of Object Glass, Lignes	Dimensions: Full Length, Inches	Dimensions: Closed, Inches	Magnifying Power, Times	Each
510	10	13½	4¾	10	$3 80
512	12	16½	5¾	12	3 50
514	14	17	6¼	16	4 00
516	16	23	8	20	6 30
519	19	29¼	9¾	25	8 00

LIQUID LE PAGE'S GLUE.

For Wood, Leather, Glass, Iron, Stone, Paper and Cloth.

LE PAGE'S.

IN BOTTLES, for Family use, with Brush. Per Dozen

1 oz.—Weight per dozen about 3 lbs..... $1.07

2 oz.—Weight per dozen about 6 lbs..... 1.65

One Dozen Bottles in a Cardboard Box.

1 oz., Twelve Dozen; 2 oz., Six Dozen in a Case.

LE PAGE'S.

IN TIN CANS, with Brush, for Family use. Per Dozen

½ Gill—Weight per dozen about 4 lbs..... $1.65

1 Gill—Weight per dozen about 8 lbs..... 2.20

One Dozen in a Cardboard Box, Three Dozen in a Case.

LE PAGE'S.

IN TIN CANS, for Mechanics' use. Per Dozen

½ Pint—Weight per dozen about 10 lbs $3.25

1 Pint—Weight per dozen about 20 lbs 5.40

1 Quart—Weight per dozen about 40 lbs..... 9.[illegible]

½ Gallon—Weight per dozen about 76 lbs..... 18.50

1 Gallon—Weight per dozen about 144 lbs..... 36.00

½ Pints, Two Dozen. Pints and Quarts, One Dozen; Half and One Gallon, One-half Dozen in a Case.

DISPLAY STAND IN CASE.

Le Page's, Assorted Cases. Per Case

Assorted Case. Contents:

Two Dozen 1 oz. Bottles.
One Dozen ½ Gill Cases.
One Display Stand and Advertising Cards $3.75

Weight per Case about 12 lbs.

Le Page's "Ready-for-use." Self-Sealing Tubes. Per Dozen

No. R—"READY-FOR-USE," Le Page's, Liquid Glue $1.07
Weight per Dozen 1½ lbs.

One-twelfth Dozen in Carton; Two Dozen Cartons in a Cardboard Box, with Handsome Show Card, One Gross in a Case.

LE PAGE'S MUCILAGE.

Gold Medal.

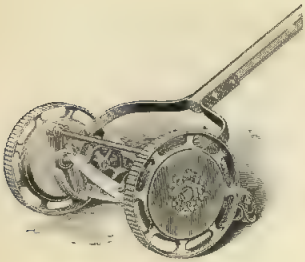
Per Dozen

Mucilage—2 oz. Cone Bottles, with Cap and Brush $1.20

Weight per Dozen about 15 lbs.

One Dozen in a Case; Six Dozen in a Rack

LAWN MOWERS.



LAKEWOOD.

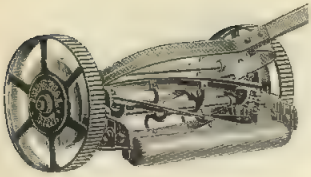
High Wheel Ball Bearing.

A really good Mower at a medium price. It has all of the latest improvements in gears, ratchets and adjustments.

High Wheels, 5-inch 4-blade revolving cutters, patent dust proof ball retainers, cones and cups made of best quality cone steel. The adjustment of both cones in the revolving cutter is accomplished by means of one screw only, and the cones have a positive locking device. This also consists of but a single screw.

Wheels 9 inches high.

Width of Cut, Inches,	14	16	18
Each,	$16 00	18 00	20 00



IMPERIAL.

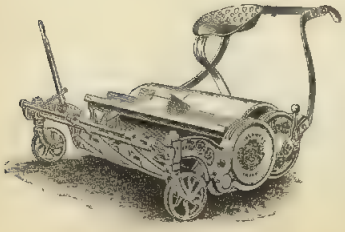
High Wheel Self Sharpening.

A Strictly high grade Mower fully warranted. New patent double edge reversible bottom knife of channel form, perfectly rigid. Reel is adjusted by means of a patent hanger, and a locking screw holds same firmly. Wear on all bearings can be easily taken up.

High Wheel, triple pawl ratchets, 6-inch 4-blade revolving cutters.

Wheels 10 inches high.

Width of Cut, Inches,	14	16	18	20
Each,	$20 00	22 00	24 00	26 00



CALDWELL'S IMPROVED HORSE MOWER.

Furnished complete with seat, shafts and side draft attachment; made regularly with four blades in the revolving cutter.

Driver can throw the Machine in and out of gear from the seat. Has device for adjusting height of cut. and for raising the knives from the ground instantly when passing over stones or obstructions of any kind.

With Four Blade Reel.

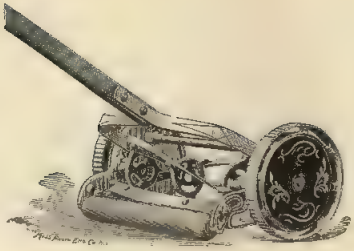
Width of Cut, Inches,	30	35	40
Each,	$110 00	135 00	170 00

For Six Blades add $10 to the above list.

MORLEY-MURPHY HARDWARE COMPANY, GREEN BAY, WIS.

MORLEY-MURPHY HARDWARE COMPANY, GREEN BAY, WIS.

LAWN MOWERS.

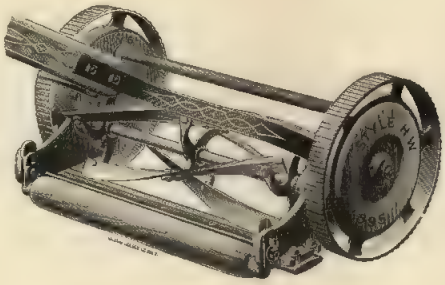


WEDGEWAY CADET.

Built of the Best Material (by skilled workmen) at a price as low as any good Lawn Mower can be sold. We have no hesitation in saying that it is the best Lawn Mower sold at the price, has large driving wheels, brass reel bearings, patent flexible bottom knife, 5-inch 3-bladed revolving cutters, while the ratchet gears and adjustments are same as those used on many of the high grade Mowers. High speed, easy running.

Wheels 8 inches high.

Width of Cut, Inches,	14	16	18
Each,	$8 00	9 00	10 00

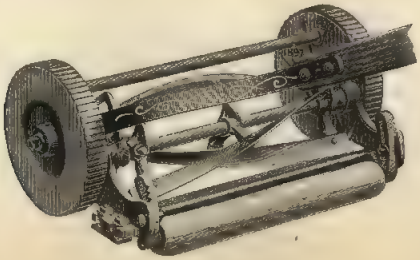


WEDGEWAY HIGH WHEEL.

Built on first-class principles with all latest improvements, noiseless in action. High wheels, heavy bronze bearings, 6-inch 4-bladed revolving cutters, self-sharpening. A high grade, high speed Mower at a moderate price

Wheels 9½ inches high.

Width of Cut, Inches,	14	16	18	20
Each,	$14 00	16 00	18 00	$20 00



CHELSEA.

High speed, thoroughly adjustable, 5½-inch 3-bladed revolving cutters. A well made cheap Mower for competitive trade.

Wheels 7½ inches high.

Width of Cut, Inches,	14	16	18
Each,	$6 00	7 00	8 00

Vanadium Steel Cranks

Also connecting rods, proven by actual tests to be superior to drop forgings

We have installed special machinery for finishing cranks and connecting rods in all sizes and quantities either from your patterns or from drawings. You can save cost of [illegible] and get prompt service. Write for prices on your requirements. We also make the best grade of crucible steel castings on the market.

New Process Steel Co., 200 River St., Marshall, Mich.

BODIES

Of all descriptions for manufacturers. In the White or Painted and Trimmed

No. 116. Fully Equipped, 7 passenger Body.

We specialize building Bodies for Automobiles only, and have ample and competent facilities to assure satisfaction as well as prices.

Write us for folder of our Windshield.

The Barndt-Johnston Auto Supply Company, Columbus, Ohio

Write for This Book on This Full 18-20 Horse Power Car That Always

Goes The Route

Not "an engine in a buggy" but built up from highest type chassis carrying powerful water cooled motor. Speed 1 to 30 miles. Goes average 25 miles on 1 gallon gasoline.

The Invincible SCHACHT

Handsome lines and finish—regular auto appearance. High wheel stylo best for all roads—[illegible] Economy of first cost and [illegible] from steering wheel—[illegible] wheel. Also [illegible] gear [illegible] and [illegible]—[illegible] rich solid rubber tires—Timken roller bearings—[illegible] Carburetor, etc.,—All of very highest quality.

Write for prices—free books or Special Offer to Agents.

THE SCHACHT MFG. CO., 2705 Spring Grove Ave., Cincinnati, Ohio

Automobile Bodies

TOURING CAR — TOWN CAR
LIMOUSINE — ROADSTER
AUTO BUGGY — RUNABOUT
TAXICAB

Wind Shields a Specialty

THE FRANTZ BODY MFG. CO.
Akron, Ohio

CORBIN

Member Association of Licensed Automobile Manufacturers

LANE STEAM ROADSTER

We will be at the New York Show, Grand Central Palace, Dec 31st. BE SURE to see our various models.

Lane Motor Vehicle Co., Poughkeepsie, N. Y.

Rotary Pumps

FOR circulation of Water and Oil on Automobile, Marine or Stationary Engines and for bilge purposes. All sizes and capacities.

SEND FOR CATALOGUE

The Lipman Mfg. Co.
206 Pleasant St., BELOIT, WIS.

"6-25" For Auto Ignition, Price $11.50

The success of the **CHAMPION ACCUMULATOR** lies in the construction of the Plates. They are thick and strong and the ACTIVE MATERIAL is enclosed. Cannot short-circuit. Never need cleaning out. Bulletin "G" tells all about them.

HECTOR MacRAE, 314 St. Paul Street, Baltimore, Md.

STEAM JACKET KETTLES

These Kettles are made of very thick metal put together without stay bolts have ample steam space are packed with asbestos sheet packing tapped for inlet and drip pipes, and unless ordered for higher pressure are tested to 75 lbs hydraulic pressure to the square inch

The inner and outer sections are cast separately, so that the inner Kettle may be replaced when worn out from use of acids or any corrosive material

Either style may be had with any size outlet pipe, or any special attachment may be made to order.

Capacity, gallons	Inside Dimensions, inches	Price Each
5	14 x 10	$ 20.00
10	18 x 12	28 00
15	21 x 14	32 00
20	22 x 15	40 00
25	24 x 16	50 00
33	28 x 16	60 00
40	29 x 17	65 00
90	38 x 22	110 00

With Raised Curb

Capacity, gallons	Inside Dimensions, inches	Price Each
34	24 x 21	$ 60 00
54	29 x 22	75 00
114	38 x 27	125 00

Hinged covers, $8.00 to $10.00 extra net.

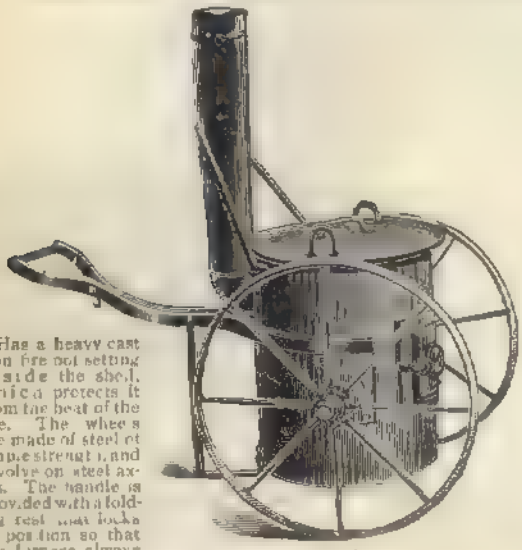
These capacities vary somewhat as the extra thickness of metal used for the heavier steam pressures decreases the capacity slightly.

The smaller sizes of either style can be furnished coated with gray enamel, at an extra cost of from $30.00 to $35.00 **net.**

LEAD MELTING FURNACES

Capacity of Kettle, 750 Pounds Lead

These furnaces are constructed of 3/16 inch boiler steel strong riveted and braced with cast iron dumping and shaking grate



No. 1

Has a heavy cast iron fire pot setting inside the shell, which protects it from the heat of the fire. The wheels are made of steel of ample strength, and revolve on steel axles. The handle is provided with a folding rest that locks in position so that the furnace always stands solid on the [illegible] The kettle is very heavy, and has an inside flange to [illegible] the furnace is being moved. A heavy steel cover is supplied without extra charge

Price.....$50.00

No. 2

The furnace rests on three heavy steel legs, and has four carrying loops riveted to shell so that it can be easily carried about by means of two pieces of pipe or iron bars. It can be furnished with or without cast iron fire pot inside of shell

With cast iron fire pot..... $35 00

Without fire pot..... 32 00

A heavy steel cover for kettle is supplied without extra charge.

SUGAR OR WASH KETTLES

With Bails. Milled and Painted

No.	Dimensions, inches	Capacity, Gallons Actual	Capacity, Gallons Usually Rated	Price Each
1	16 x 12	8	10	$2 20
2	18 x 12	10½	13	2 80
3	20¼ x 13½	15	18	3 50
4	22 x 13½	18½	20	4 50
5	23 x 14½	21½	25	5.00
6	25 x 15¼	25½	30	6 00
7	26 x 16	29½	32	7 00

CALDRON KETTLES

Actual Measure, Gallons	Diam. Outside of Flange, in.	Diam Inside of Flange, in.	Depth Inside, in.	Price Each
25	28	24	16	$ 6 00
33	31	28	16	8 00
41	34	30	19	10 00
48	35	31	19	12 00
53	36	32	20	13 00
65	39	34	20	14 00
75	41	36	22	18 00
90	43	38	22	25 00
110	46	42	23	30 00
150	61	54	24	50 00
250	62½	58	31	70 00
500	80	72	40	150 00

All sizes above 75 gallons are cast without lugs on rim unless specially ordered.

Any of the above Kettles may be had tapped for outlet pipes at an extra charge of $3.00 net.

All sizes of the above Caldrons, up to 90 gallons, may be had coated with gray enamel at an extra charge of from $10.00 to $12 00 net.

FARM BOILERS

or Dumping Caldrons
Burns Coal or Wood

It is very economical with fuel. The kettle when dumped exposes all the flues, so it can be kept free from soot—a feature no other boiler has. It is used largely by

Brewers **Packers**
Bottlers **Varnish Makers**
Public Institutions **Distillers**

and many other trades that require a caldron to heat or boil any substance

No.	Capacity Gallons	For Wood	For Coal	For Wood and Coal
1	25	$23 00	$23 00	$27 00
2	48	34 00	34 00	38 00
3	53	38 00	38 00	42 00
4	75	46 00	46 00	50.00

Enameled Caldrons quoted upon application.

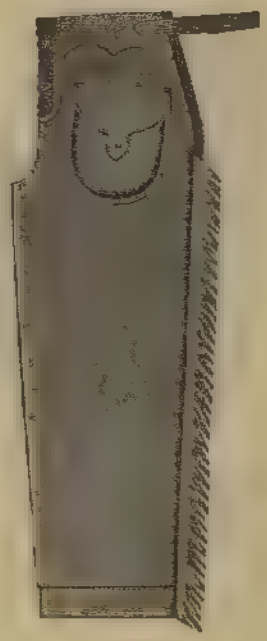
STEEL BOILERS

The jacket or shell is made from heavy sheet steel, with edges banded and has no bottom as the stove is intended to be used on the earth or to be filled with brick or clay up to the bottom of the feed door. It is provided with double doors so that it can be conveniently used as a coal burner when supplied with coal fixtures.

No.	Capacity Gallons	Price Each	No.	Capacity, Gallons	Price Each
1	25	$12 00	6	58	$19 50
2	33	14 00	7	65	22 00
3	40	16 00	8	75	26 00
4	48	16 50	9	90	32 00
5	53	18 00	10	110	36 00

CHAPAREJOS.

TO BUCKLE AROUND WAIST.



No. 240.

Per Pair

No. 240—Brown Duck Front and Back, with Pocket; Russet Legging Leather Fringe and Trimmed..... $5.00

No. 241—Russet Legging Leather Front and Fringe; Brown Duck Back, with Pocket 9.00

Per Pair

No. 242—All Russet Legging Leather Front and Back, with Pocket; no Fringe $15.00

Per Pair

No. 243—All Russet Legging Leather, Fringed; With Pockets $16.00

Note—Give Waist and Inside Seam Measure when Ordering Chaparejos.

Packed Loose; Weight per Pair about 8 lbs.

RUSSET LEATHER HAT BANDS.

No. 250—Hat Bands, Embossed; Nickel Plated Buckle. Adjustable to any Size Hat.

Width, inches	1/4	1/2	5/8	3/4	7/8	1	1¼	1½	2
Per dozen	$2.00	2.20	2.50	2.70	2.80	3.20	3.70	4.80	7.00

Per Dozen

No. 251—Hat Band; 2 inches Wide; Russet; Hand Raised Stamped, Nickel Plated Buckles, Adjustable to any Size Hat $17.00

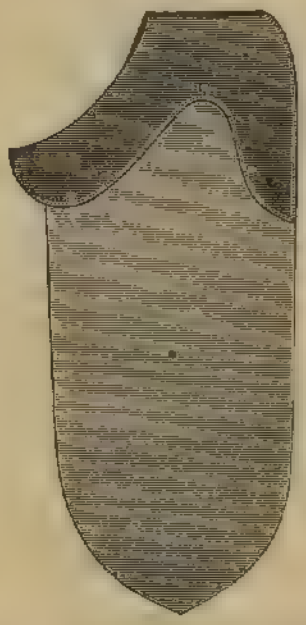
One Dozen in a Package; Weight per Dozen about 1 lb.

SADDLE POCKETS.

Per Pair
No. 304—Saddle Pockets; 6½ inches Wide, 7½ inches Deep; Wheeled and Creased Russet Skirting Leather $3.70

Per Pair
No. 302—Saddle Pockets; 6½ inches Wide, 7½ inches Deep; With Short Flap; Wheeled and Creased Russet Skirting Leather; Nickel Plated Buckles $4.50

Per Pair
No. 300—Saddle Pockets; 8 inches Wide, 8½ inches Deep; With Flap; Full Basket Stamped; Fancy Border; Russet Skirting Leather; Nickel Plated Buckles $7.50



Per Pair
No. 301—Saddle Pockets; 10 inches Wide, 15 inches Deep; Plain Finish Russet Skirting Leather $8.00

Our Modern Factory Equipped With the Latest Machinery Enables us To Produce The Best of Everything At a Low Price.

Per Pair
No. 303—Saddle Pockets; 8 inches Wide, 15 inches Deep; Solid Flap; Full Hand Raised Stamped, Russet Skirting Leather.....$11.50

Packed Loose; Weight per Pair about 3 lbs.

TOYS—Continued

MISCELLANEOUS MECHANICAL TOYS

Metal decorated in colors, with spring motive power We do not break packages

No. 86212 Six different kinds of mechanical toys, running cat acrobats, bear, etc., etc., 12 in box, not broken .... Per doz. $1 00

No. 86214 Turtle length 7 inches... Per doz. $4 00

No 86181 No. 86722

No. 86181 Clashing miller a very active toy Per doz. $4 20
86722 See-saw automatic, no springs, reversible height 13½ inches $5 50

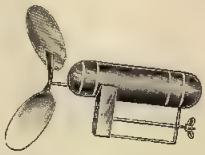
No. 86178 "Tap Tap" wheelbarrow, pushed by man, when wound man will walk, length 6 inches, height 5½ inches Per doz. $4 00

No. 86216 Duck on wheels, length 7 inches Per doz. $4 00

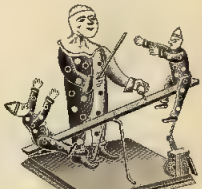
No. 86114 Tin cannon mounted on colored tin carriage, 4 small wheels, will shoot peas, etc., length 10 inches, height 3½ inches Per doz. $4 00

No. 86217 Acrobat on horizontal bar width 5 inches, height 8 inches Per doz. $4 50

No. 86213 Birds on wheels, rooster, pidgeon, and duck, when wound will run and flap their wings. Per doz. $4 00



No. 86250 Airship with a large paper screw, body is in cigar shape, and is to be attached to a string fastened to the ceiling when wound up airship will move through the air in a circle 5 inches long, each in box . ... Per doz. $4 00



No. 86218 Three clowns, when wound are very active size of base 4 inches square and 6 inches high ... Per doz. $4 50

No 86109 No. 86110

No. 86109 Carousel, revolving, ascending, and descending, height 14½ inches $4 00
86110 Same as No. 86109 but has 2 spiral wires $8 00

No. 86215 Motor Cycle with driver, length 5 inches, each in package Per doz. $4 00

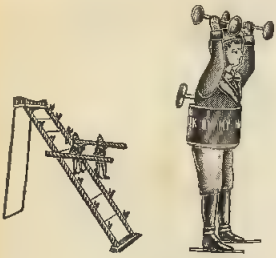
No. 86219 Boy with performing dog, size of base 3x5 inches, height 7 inches Per doz. $4 50

TOYS—Continued

MISCELLANEOUS MECHANICAL TOYS Continued

Metal, decorated in colors, with spring motive power

No. 86220 Donkey cart with girl driver length 8 inches, each in box — Per doz. $4 50



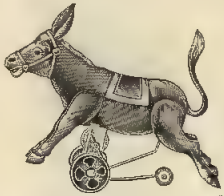
No 86221 — No 86222

No. 86221 Two acrobats on stairway, length of stairs 11 inches, each in box — Per doz. $4 50

86222 Acrobatic boy, height 7 inches, each in box — 4 50

No. 86223 Bear on stilts, when wound up will swing backwards and forwards between stilts 7 inches high, each in box, $4 50 — Per doz.

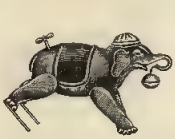
No. 86224 Arab on horseback when wound up horse will jump forward on his hind legs, 8½ inches high, each in box, $4 50 — Per doz.



No. 86226 Tin donkey, woolfast colored, running on three wheels, when wound up will run forwards kicking his heels 7 inches long, 6 inches high, each in box . . . . $5 00 — Per doz.

No. 86324 Jumping fur animals assorted 3, consisting of cat, dog, and rabbit, when wound up will hop along on their hind legs in a lifelike manner, packed one dozen assorted in a box, height 5 inches . . . . . $4 50 — Per doz.

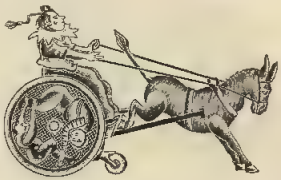
No. 86325 Tin cab with driver, when wound up toy will run forward, horse moving in a galloping motion, 9 inches long, each in box . . . . . $5 00 — Per doz.



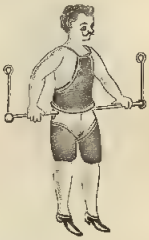
No. 86327 Colored circus elephant with jockey cap, bell in trunk and his fancy blanket, standing on his hind legs, when wound up will run forwards and flop his ears, 6 inches high, each in box $5 00 — Per doz.

No. 86228 Seesaw with 2 monkey sitting at each end, when wound up monkeys will seesaw swinging their arms, 9 inches long each in box . . . . . $5 00 — Per doz.

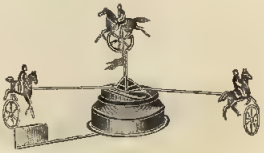
No. 86229 Tin girl having two diabolo sticks in her hands playing diabolo, when wound up will swing her arms and diabolo will move from one stick to the other, 7 inches high, each in box . . . . . $5 00 — Per doz.



No. 86180 Balky mule, donkey and clown jockey, runs and balks, length 8 inches. . $7 50 — Per doz.



No. 86234 Acrobat hanging on trapeze, when wound up acrobat will turn forward around trapeze bar and reverse, acrobat 7½ inches long, each in box $7 50 — Per doz.



No. 86235 Circular platform with three horses and riders around it, each horse is mounted on a large wheel, when wound up horses will run around in a circle and jump over a hurdle, each in box . . . . . $7 50 — Per doz.

TOYS—Continued

MISCELLANEOUS MECHANICAL TOYS—Continued

Metal, decorated in colors, with spring motive power

No 86238 No 86237

No. Per doz.
86238 Japanese balancing himself on two ladders, one of which he has in each hand, when wound up body of Jap will sway from side to side, 11 inches long . . . $7 50
86237 Negro holding double hoop in his hands through which a white poodle jumps while negro shakes his head 8 inches high, each box 7 50

No. Per doz.
86239 Colored man and ostrich, both colored man and ostrich are active when the car moves along, length 10 inches, height 6½ inches, each in box. $7 50

No. Per doz.
86240 Turtle with rider tastefully decorated each in box. $7 50

No. Per doz.
86251 Whirling and chiming balloon, painted in colors, height 9 inches $7 50

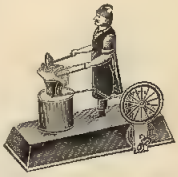
No. Per doz.
86362 Duck on wheel with voice, length 6 inches. . $8 00

No. Per doz.
86253 Bowler, will knock down balls by pressing button, height 7½ inches $7 80

No. Per doz.
86252 Hunter, gun will shoot small white pellets, height 9 inches $8 00

No. Per doz
86337 Swimming duck, when wound up duck swims gracefully along turning from side to side, length 6 inches, packed each in box $8 00

No. Per doz.
86122 Tin bear holding stick, when wound bear will walk forward, height 8 inches, packed each in box. . . . $8 00



No. Per doz.
86232 Blacksmith, with anvil in front of him mounted on 4 wheels, when wound up blacksmith will hammer on anvil platform 5½x3 inches 5½ inches high, each in box. $8 00

No. Per doz.
86233 Grinder with a grindstone in front of him, when wound up grinder will run grindstone with his right leg platform 6½x2½ inches, 5 inches high, each in box. $8 00

No. Per doz.
86242 Goat with movable head on two wheels, clown rider, length 6½ inches, height 7 inches $8 00

No. Per doz.
86243 Active grasshopper length 8½ inches $8 00

TOYS Continued

MECHANICAL TOYS Continued

Metal, decorated in colors, with spring motive power

No. 86245

No. 86061

Per doz.

86245 Duck with movable head and tail, when wound up will run in a circle moving its head and shake its tail as if swimming, length 7½ inches, each in box $3 00

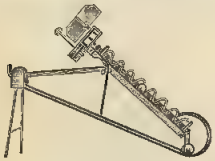
86061 Fluffy Ruffles, brightly painted, when wound will run straight for a short distance, then runs three or four times in a circle, height 7½ inches 8 00

No. 86246 Per doz.

86246 Galloping horse, with rider, length 7 inches, height 3½ inches $8 00

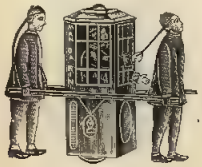
No. 86247 Per doz.

86247 Miniature Irish Mail with two boys, when wound up two boys will move the handles as though moving machine, toy will move in a circle length 8 inches, each in box $8 00



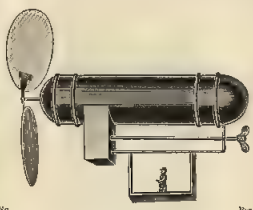
No. 86248 Per doz.

86248 Spiral toy, wire revolves by clock work, brings marble to top and drops it into shoot and brings it to top again $8 00



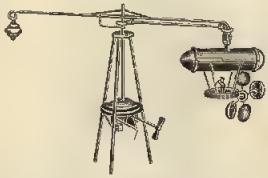
No. 86179 Per doz.

86179 Two Chinese carrying mandarine in Chinese cart, length 7½ inches, height 6½ inches. $9 00



No. 86231 Per doz.

86231 Airship with paper screw, length 7 inches $3 00

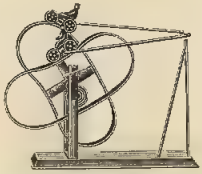


No. 86209 Per doz.

86209 Airship revolving round a pedestal, has man in the boat, when wound up ship will revolve round pedestal, stop suddenly and reverse, going in the opposite direction $16 00

No. 86121 Per doz.

86121 Man and two barrels, when wound man walks rolling barrels forward Height 7½ inches, each in box $12 00

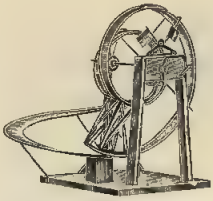


No. 86249 Per doz.

86249 Two oval shaped tracks hung in the air on a bar attached to an upright bar to which two automobiles are fastened, resting on the tracks, when wound up tracks will revolve causing automobiles to turn over them, mounted on a platform 9 inches long, 3½ inches wide, 10 inches high, each in box . $16 00

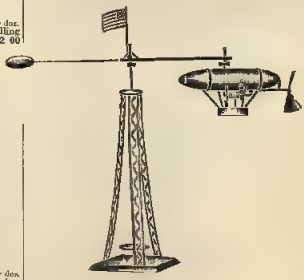
No. 86211 Per doz.

86211 Tank on tall trestle work, two shafts with fly-wheels and acrobats, when wound tank will revolve and acrobats will become very active, height 13 inches $21 00



No. 86250 Per doz.

86250 Spiral shaped track fastened to an axle between two posts suspending it in mid-air When wound up spiral track will revolve and pick a car from a circular shoot in front of it and through its motion pass a car to the end of the tracks when the car passes into the higher end of the shoot and descends to be picked up again, mounted on a platform 6 inches by 8 inches, 8½ inches high, each in box. .$24 00



No. 86210 Per doz.

86210 Airship mounted on pedestal, when wound up fly-wheel in back of airship will turn, causing ship to revolve round pedestal, packed each in box..... .... $24 00

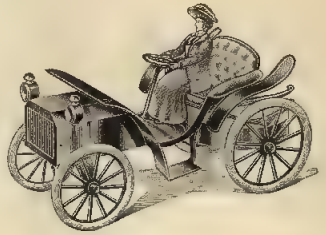
TOYS—Continued

MISCELLANEOUS MECHANICAL TOYS—Continued

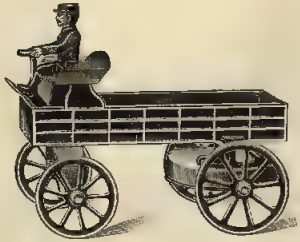
With extra strong, spring motive power

With extra strong, spring motive power

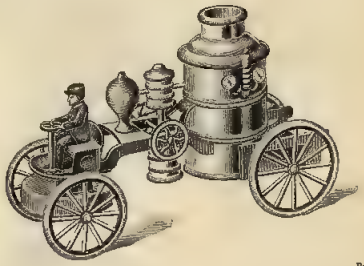
No. 86813 Automobile surrey, painted, length 7½ inches — Per doz. $8 64



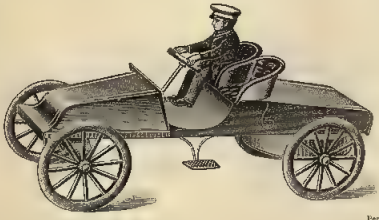
No. 86818 Automobile phaeton, aluminum finish, length 9 inches — Per doz. $18 00



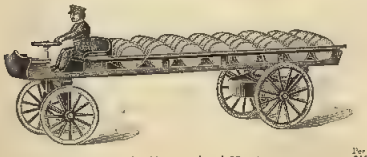
No. 86819 Automobile, painted, length 7 inches — Per doz. $8 64



No. 86814 Automobile fire engine, finished in gold and aluminum, rubber tires, length 9¾ inches — Per doz. $18 20



No. 86815 Automobile racer, painted, rubber tires, length 10 inches — Per doz. $18 00



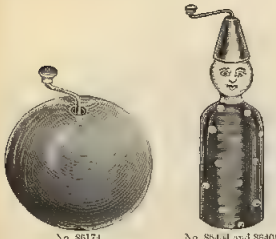
No. 86816 Motor truck wagon, painted, rubber tires, length 15 inches — Per doz. $19 00

No. 86817 Auto aerial ladder truck, painted, the ladder releases automatically when truck strikes obstacle, rubber tires, length 18 inches — Per doz. $39 00

TOYS—Continued

MUSICAL MECHANICAL TOYS

We do not break packages



No 86171 No 86404 and 86405

No. 86174 Musical tin apple, turning crank produces music Per doz. $1 50

No. 86404 Musical bottle painted in bright colors turning crank produces music height 4½ inches, 1 dozen in box Per doz. 1 60

86405 Same as No 86404, height 7½ inches, ½ dozen in box 4 00

No. 86175 Horse on two wheels with long wood handle, when pushed along floor horse will gallop and music will play Per doz. $4 00

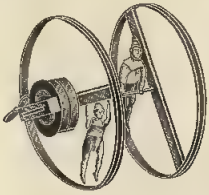
No. 86393 Banjo, metal body, four strings, music produced by turning crank, 6 in box Per doz. $4 00

No. 86394 Revolving decorated tin cylinder bell attached to wooden handle, when revolving bell rings and music plays, 6 in box Per doz. $4 00

No. 86395 Decorated tin cylinder, with wooden crank 3 in. package, not broken. Per doz. $8 00

No. 86097 Metalaphone and clown, mounted on tin platform, height, 5¼ inches, each in box Per doz. $8 00

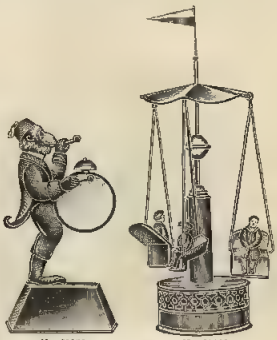
No. 86098 Musical Frog mounted on two small wheels, when wound moves forward and music plays length, 8 inches, each in box Per doz. $8 00



No. 86099 Musical Jointed Clowns attached to axle, when wound wheels revolve and clowns perform wonderful acrobatic stunts on axle, diameter of wheel, 7 inches Per doz. $8 00

No. 86101 Clown mounted on a pedestal, when wound white poodle runs around the clown, height 8½ inches, each in box Per doz. $8 00

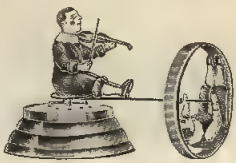
No. 86100 Decorated tin musical toy, two "Darkies" sitting on bench with musical instruments, when wound music is produced, each in box Per doz. $9 00



No 86102 No 86208

No. 86102 Monkey, bass drum and cymbal, all of which becomes very active when wound, monkey beats the drum and strikes bell while wonderful music plays, each in box Per doz. $6 00

86208 Swinging top in the shape of a Carousel having 4 swings attached to it with people, music of them, 10 inches high, each in box .8 00



No. 86103 Two Clowns on platform when wound one plays violin while the other rolls a hoop, height 6 inches, each in box Per doz. $18 00

No. 86104 Clown and four dogs, all very active, clown plays violin and when he shakes his head the dogs get busy and revolve in a circle, each in box Per doz. $18 00

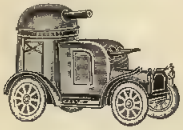
TOYS—Continued

MECHANICAL AUTOMOBILES—Continued

Metal, decorated in colors, with spring motive power

No. 86183 Automobile with figures of man and boy length 5 inches, height 4 inches, each in box..... Per doz. $4 00

No. 86182 Auto with chauffeur, open wagon style, runs in circle each in box..... Per doz. $4 00



No. 86203 Mechanical war auto, consisting of two small guns and one large gun protruding from body, run either in circle or straight way, 6½ inches long, 4 inches high, each in box Per doz. $4 00

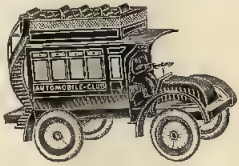
No. 86194 Mechanical auto, open touring car shape with chauffeur, has brass, 8 inches long, 4 inches high, packed each in box Per doz. $8 00

No. 86195 Is a closed touring car shape with motorman, 7½ inches long 4 inches high, packed each in box Per doz. $8 00

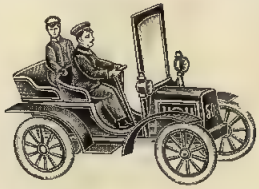
No. 86193 Mechanical toy automobile open racing shape, has two motormen 9 inches long, 4 inches high, each in box Per doz. $8 50

No. 86177 "Tut Tut" run-about auto, man inside blows hunting horn, when wound runs forward until man turns wheel changing direction, length 7 inches, height 6½ inches ..$8 50 Per doz.

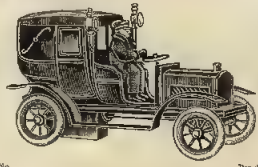
No. 86195 Mechanical UHU, consists of a land and water auto, cigar shape, with 4 wheels, each wheel having paddle, in front of motorman is a glass window protector, can be run either in circle or straight, when wound up motorman will turn his head length 9 inches, each in box ..... Per doz. $8 50



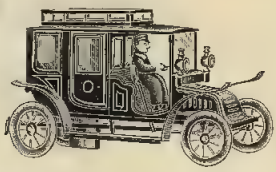
No. 86196 Mechanical auto in the shape of an auto bus having stairs leading to roof, on which are seats, 9 inches long, 4 inches high, each in box ..... Per doz. $8 00



No. 86199 Mechanical auto, open touring car shape, with motorman and passenger, has glass protection front, 9 inches long 4½ inches high, each in box Per doz. $15 00



No. 86200 Closed taxicab auto with chauffeur, 9 inches long, 5 inches high, each in box Per doz. $15 00



No. 86201 Mechanical automobile, closed touring car shape, when wound up will toot toot like an automobile horn length 9 inches, each in box ..... Per doz. $24 00

No. 86202 Mechanical auto closed touring car shape, with beveled plate glass windows, has break, motorman and 2 passengers, when wound up will toot toot like an auto, 11 inches long, 7¾ inches high, each in box. Per doz. $48 00

No. 86186 Automobile with two occupants, will ascend an incline, length 6 inches, three in package, not broken Per doz. $8 00

No. 86187 Automobile with chauffeur, length 8 inches each in box ..... Per doz. $16 00

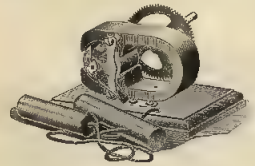
No. 86188 Automobile with chauffeur length 9 inches, each in box Per doz. $24 00

TOYS—Continued

ELECTRIC TOYS Continued

No. 86909 Electric car outfit, third rail system, operates from 3 dry batteries, 8 sections of third rail track, making a circle 3½ feet in diameter, length 9 inches, height 6 inches Per doz. $78 00

No. 86911 Electric express locomotive, operates from 6 dry batteries, third rail system, length of locomotive and tender 22½ inches, height 5½ inches Per doz. $204 00



No. 86936 Battery diameter of base 4¾ inches Per doz. $16 80

No. 86910 Electric switch locomotive, will run from 5 dry batteries third rail system, length 1 inches, height 4½ inches Per doz. $132 00

MESCO DRY BATTERIES

No. 2385 For call bells, annunciators burglar alarms, telephone medical apparatus, the laboratory and all open circuit use, size 2½x6½ Per doz. $3 36

Red seal dry batteries for operating motor cars and toys 4 80

WINDOW ATTRACTION

No. 86718 Mechanical Santa Claus, wood back, clock works which move head from side to side height 17½ inches Per doz. $48 00

No. 86719 Water melon Sam lithographed face of darkey eating water melon, moves by clock works, height 17½ inches Per doz. $48 00

No. 86582 Electric aerial swing, height 18 inches, operates with dry battery Per doz. $60 00

MECHANICAL TOYS

AUTOMOBILES

Metal, decorated in colors, with spring motive power. We do not break packages

No. 86189

No. 86191

No. 86189 Touring car shape with motorman, length 6 inches each in box Per doz. $4 00

86191 Open touring car shape, with motorman, length 6 inches, each in box 4 00

No. 86190

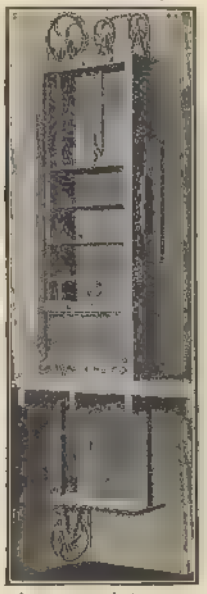
No. 86176

No. 86190 Gordon Bennett racer with motorman, 7 inches long, 1 inches high, ½ dozen in box Per doz. $4 00

86176 Auto delivery wagon, can be set to run either in a circle or straightway, length 5½ inches, height 3½ inches 4 00

DUMB WAITERS

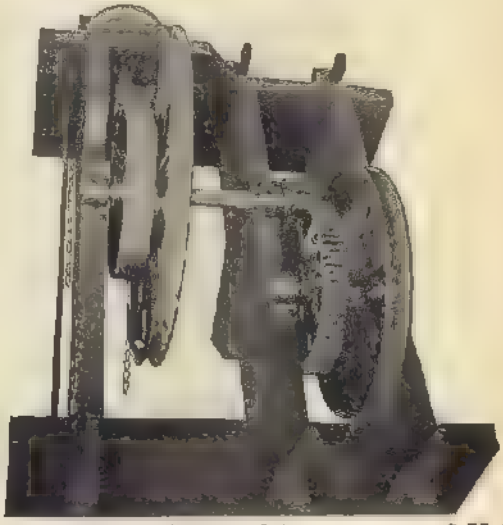
"Little Dandy"



1 Story Travel, price complete.....	$50.00
2 " " " "	55.00
3 " " " "	65.00

Our Little Dandy dumb waiter has a capacity of from 25 to 500 pounds. It is easily operated and quite inexpensive. It is neat in appearance. Cars are made with or without movable shelves. Size, 24 inches wide, 20 inches deep and 28 inches high.

"Geared"



1 Story Travel, price complete.....	$ 75.00
2 " " " "	85.00
3 " " " "	100.00

Our geared dumb waiters have a capacity of from 50 to 500 pounds, are easy to operate and are noiseless. Cars are made of ash, 24 inches wide, 20 inches deep, 28 inches high. Cars can be made any size desired.

HAND POWER ELEVATORS

"Center Lift"

The difference between the carriage lift and center lift elevators is in the platform: the former, being suspended by a cable at each corner, affords plenty of head-room necessary for the handling of vehicles.

PLATFORMS MADE ANY SIZE WANTED

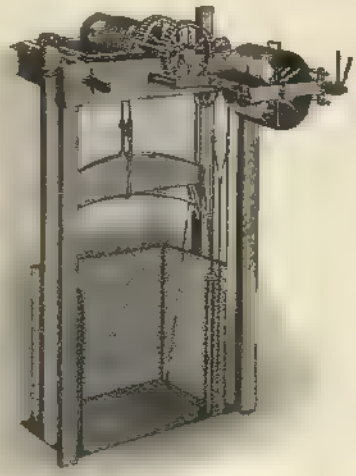
The parts of these machines are described as follows:

One cast iron hand rope wheel with brake pulley attached, one cast iron gear and pinion, two drums made up of cast iron heads with maple centers spirally grooved for cables. All shafts of cold rolled steel operating on self lubricating bushings which require no oil and reduce friction to a minimum. Cables are of the best annealed Swedish iron; hand and brake ropes are of pure manila.

"Carriage Lift"

PRICES UPON APPLICATION

ELEVATORS



No. 4 Power Attachment

NO. 8 BASEMENT HOIST

Car is made of ash thoroughly braced and riveted with steel.

It is raised and lowered by hoisting winch which can be bolted to floor.

Winch is built very strong, and fitted with our improved brake.

Platform Made Any Size Desired

Capacity 500 to 6000 Lbs.

No. 8 Basement Hoist

NO. 4 POWER ATTACHMENT

To anyone contemplating purchasing a power elevator and who does not wish to incur the expenses of a worm gear machine, we offer our Power Attachment No. 4.

This machine is thoroughly constructed and particularly adapted for light loads—500 to 2,000 lbs.

It is a noiseless combination provided with two cut gears and pinions, one or two drums (whichever is necessary), with cast heads and spirally grooved maple centers scored for cables.

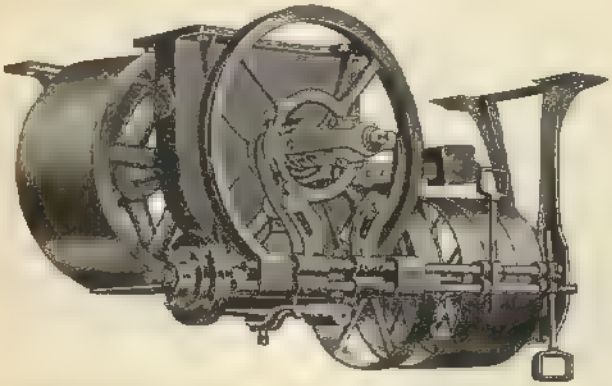
The pulleys are set in a cast iron frame and supplied with a shifting device.

It is provided with our improved brake, which is noiseless, positive and secure.

Platforms of any size are made of well seasoned ash, thoroughly braced and bolted, and provided with maple flooring. They are also provided with the Union Patent Safety System, and in case of breakage of the hoisting cables, the safety cogs are thrown in contact with the guide strips, thus preventing the fall of car.

The machine is furnished with three cables (two for hoisting and one for counterbalance) of the best annealed Swedish iron, six strands, with nineteen wires to each strand.

Improved Belt Power Worm Geared Elevator No. 5

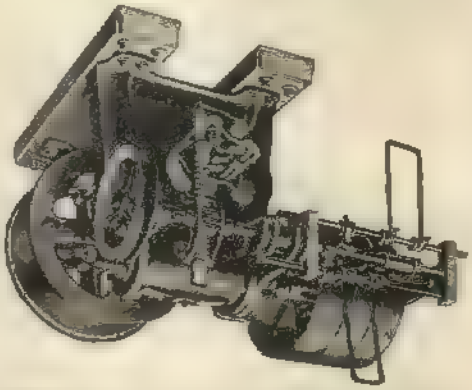


This elevator is substantially built, all parts being of exceptional strength and provided with the latest safety appliances.

Speed 45 Feet Per Minute. Platform Made Any Size Wanted

Capacity 2000 to 4000 Lbs.

Improved Belt Power Worm Geared Elevator No. 6



Similar to our No. 5 but designed for lighter work.

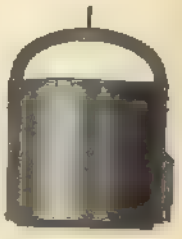
Speed 30 Feet Per Minute

Platform Made Any Size Wanted

Capacity 500 to 2000 Lbs.

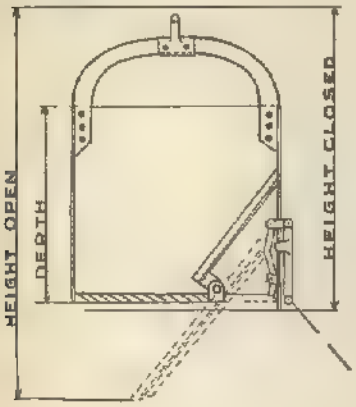
LONG'S PATENT BOTTOM DUMPING BUCKETS

Used by Railroads for Coaling Locomotives and by Contractors for Handling Concrete, Broken Stone and Other Rough Materials



These buckets are built of steel plates and are fitted with wooden bottoms or doors, which are released by means of a line attached to the latch which is shown in illustration. The doors are counter-weighted and close automatically after the material has passed out.

The dump is easy and the lock positive. A rigid bail is usually used, but we can furnish, if required, with swinging bail.



Capacity Cubic Yds.	Weight	Diameter Ft.	Diameter In.	Depth Ft.	Depth In.	Height Closed Ft.	Height Closed In	Height Open Ft.	Height Open In	Price Each
½	500	2	6	3	0	4	3	5	5½	$ 95.00
¾	750	3	1½	2	10½	4	5	6	2½	115.00
1	825	3	1½	3	10	5	4½	7	2	155.00
1¼	1300	3	10	3	6	5	1	6	10	195.00
1½	1400	3	10	4	2	5	9	7	6	230.00
2	1600	4	6	3	10½	6	5	8	5½	270.00
2¼	1650	4	6	4	4	6	10½	8	10½	310.00
2½	1700	4	6	4	9¾	7	4	9	4	345.00
3	1850	5	0	4	7	7	1	9	9	385.00
3½	1950	5	0	5	4	7	10	10	6	425.00
4	2000	5	0	6	0½	8	7	11	3	460.00

When figuring Coal Capacity, figure 50 lbs. of coal to cubic foot or 40 cubic feet to ton; i. e., a 1½ cubic yard bucket will hold 1 ton coal, etc.

LONG'S ROUND OR "TURNOVER" BUCKETS

These Turnover Buckets, as illustrated, are made of steel plates fitted with a wooden bottom and are used for handling coal, sand, gravel and other materials.

It is strong in construction and is designed for hard and severe usage. The catch, which holds the bucket in a vertical position, is of special design and is so adjusted that there is little or no chance for the bucket to dump accidentally should it come in contact with an obstruction while being hoisted from the hold of a vessel.

Capacity	Weight	Diameter Ft.	Diameter In.	Depth Ft.	Depth In.	Height Ft.	Height In.	Price
½ cu. yd.	400	2	10	2	4	3	7	$ 45.00
¾ cu. yd.	500	3	2	3	0	4	4	60.00
1 cu. yd.	700	3	2	3	9	5	2	70.00
1¼ cu. yds.	750	3	10	3	2	5	1½	80.00
1½ cu. yds.	800	3	10	3	8	5	3½	95.00
2 cu. yds.	950	4	2	4	2	6	6	110.00
2½ cu. yds.	1000	4	2	4	7	6	9	125.00
2¾ cu. yds.	1150	4	6	4	5	7	0	140.00
3 cu. yds.	1250	4	6	5	3	7	5	155.00
3½ cu. yds.	1400	5	0	5	0	7	9	170.00
4 cu. yds.	1500	5	0	5	8	8	0	185.00

Special Buckets for handling any kind of material quoted promptly upon request. Send us your specifications and state your requirements.

CONTRACTORS' STANDARD SELF-DUMPING AND SELF-RIGHTING BUCKET

Class "A" (Flaring Sides) For Handling Concrete, Mortar, Stone, Sand, Clay, Etc.

The top of the bucket is from eight to ten inches wider than the bottom, which permits the bucket to be quickly filled and the load easily and rapidly dumped. It is simple in construction, easily handled and well adapted for sinking shafts, sewer work and similar operations. The bucket although of greater first cost than the ordinary shovel or other form of cheap bucket, is the cheapest in the long run, when durability with clean and quick dumping and the avoidance of delays caused by unwarranted breakage is considered.

No.	Cap. in Cu. Ft.	Width Over All	Length, Inches	Depth, Inches	Price	No.	Cap. in Cu. Ft.	Width Over All	Length, Inches	Depth Inches	Price
86	3	30	26	15	$25.00	92	14	46	42	25	$55.00
87	4½	32	29	18	28.00	93	21	48	47	28	75.00
88	6	34	31	19	32.00	94	27	53	50	31	90.00
89	8	36	33	20	35.00	95	36	65	58	33	110.00
90	10	41	36	21½	40.00	96	42	66	59	34½	120.00
91	12	44	40	23	45.00						

CLASS "B" AND "C" CONTRACTORS' STRAIGHT SIDE BUCKETS

Class "B" Bucket

Class "B" Bucket

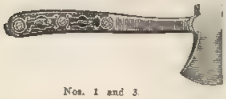
Class "C" Bucket

The Class "B" is somewhat similar in appearance to Class "A", but differs by reason of being of equal width both top and bottom, and consequently soft material will not free itself from its sides as easily as from a bucket having flaring sides. The Class "C" Bucket is the same as Class "B," but with rounded back.

Class "B" Number	Class "C" Number	Capacity in Cubic Feet	Width Over All in Inches	Length in Inches	Depth in Inches	Prices of Class B and C
97	110	3	28	26	15	$25.00
98	111	5	31	28	18	2[illegible].00
99	112	6	31½	29	19	29.00
100	113	7	34	30	13	31.00
101	114	8	35	31	19	32.00
102	115	10	36	35	21	3[illegible].00
103	116	12	38	38	23	40.00
104	117	14	38	40	25	50.00
105	118	18	43	43	27	60.00
106	119	21	45	46	28	70.00
107	120	27	47	50	30½	84.00
108	121	36	52	54	33	94.00
109	122	41	54	58	36	103.00

POCKET AXES, RECOIL PADS, ETC.

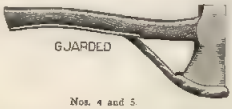
MARBLE'S SAFETY POCKET AXES.



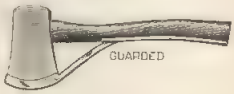
Nos. 1 and 3.

No. 2

		Each
No. 1.	**Solid Steel Blade**, length 10 in., Weight 16 oz.	$2.50
No. 2.	**Solid Steel Blade**, length 11 in., Weight 20 oz.	2.50
No. 3.	**Solid Steel Blade**, length 12 in., Weight 27 oz.	3.00



Nos. 4 and 5.

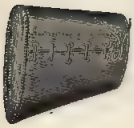


Nos. 6 and 7

		Each
No. 4.	**Solid Steel Blade**, length 12 in., Weight 24 oz.	$1.75
No. 5.	**Solid Steel Blade**, length 11 in., Weight 16 oz.	1.50
No. 6.	**Welded Steel Bit**, length 12 in., Weight 20 oz.	1.50
No. 7.	**Welded Steel Bit**, length 11 in., Weight 14 oz.	1.50

Marble Safety Axes are large enough to fel. a tree and small enough to carry in the pocket, **the nickel plated guard** is lined with lead and is hinged on a spring in such a manner that either open or closed it is firmly held in position. **the blades are of the finest tool steel**; the greatest possible care is taken in tempering and testing them, and they are fully guaranteed; **the metal handles are nickel plated and side plates are of engraved black hard rubber**; the **wood handles are of selected hickory with nickel plated steel lining and guard.**

RECOIL PADS.



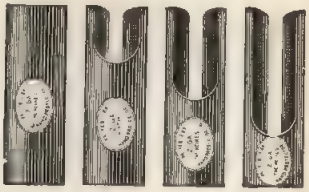
No. 500.

Red Rubber.

		Each
No. 500.	**Russet Leather**, to lace	$0.65
	Red Rubber	.75

HAND PROTECTORS.

HEIKES.



Straight. Medium. Extra. Double Extra.

They do not burn your hand when you shoot Blue Rocks.

Inches	6	9	12
Each	$0.75	1.25	1.50

CHEEK PADS.

	Each
No. 501 Leather Cheek Pads, chamois lined	$0 75

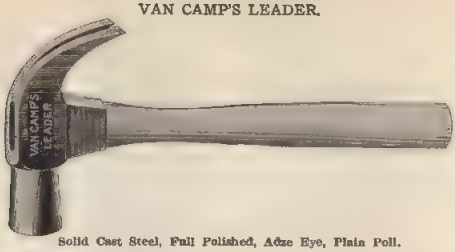
ROWLEY CHEEK PADS.

Made from Moulded Soft Sponge Rubber, Covered with Tan Colored Leather, the only perfect pad for straightening a gun or preventing it from bruising the face; **Made to fit any gun and to straighten it** ⅛, ¼ or ⅜ in.; prevents flincning, and will greatly improve your scores, and, unlike other pads, it adds to rather than detracts from the appearance of your gun.

	Each
Rowley Cheek Pads	$1.50

NAIL HAMMERS.

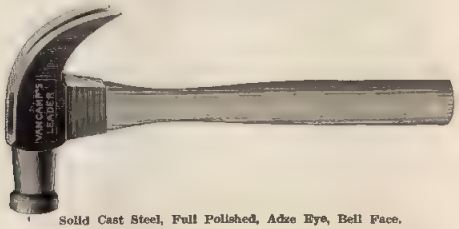
VAN CAMP'S LEADER.



Solid Cast Steel, Full Polished, Adze Eye, Plain Poll.

Nos.	1	1½	2	3
Weight	1 lb. 4 oz.	1 lb.	13 oz.	7 oz.
Per Dozen	$9.00	8.50	8.00	7.50

VAN CAMP'S LEADER, BELL FACE.



Solid Cast Steel, Full Polished, Adze Eye, Bell Face.

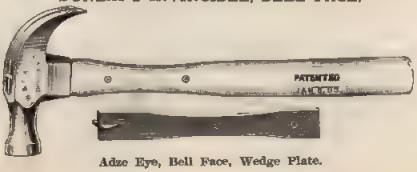
Nos.	11	11½	12	13
Weight	1 lb. 4 oz.	1 lb.	13 oz.	7 oz.
Per Dozen	$9.00	8.50	8.00	7.50

DUNLAP'S INVINCIBLE.

Adze Eye, Plain Poll, Wedge Plate.

	Per dozen
No. 1½. Forged Steel, Full Polished	$12.00

DUNLAP'S INVINCIBLE, BELL FACE.



Adze Eye, Bell Face, Wedge Plate.

	Per dozen
No. 11½. Forged Steel, Full Polished	$12.00

All above, half dozen in a box.

Note—Weights given above do not include the weight of Handles.

RUBBER BOOTS

WOOL OR FRICTION LINED.

Light Short.
Plain or Pebble Leg.

Heavy Short.
Bright or Dull Finish

Men's. Per pair $4 60
Boys'. " 3 25
Men's, with heavy leather soles. Per pair .. 6 00

STORM KING BOOT

This boot is lined with a wool net lining and has an elastic stockinet top.

Heavy or Light Weight. Bright or Dull Finish.
Wool or Friction Lined.
Men's Common .... $5 05 Men's Duck.. . .$5 70

HIP AND SPORTING BOOTS

Hip.

Sporting.

Heavy or Light Weight. Bright or Dull Finish.
Wool or Friction Lined.

Men's Duck Hip. Each $6.85
" Common Hip. Each 6.10
" Sporting. Each..... 6 85
" Hip, with heavy leather soles. Each.. 8.00

RUBBER BLANKETS

Poncho Blankets

45x72 inches. Each .. $1 40
Dull Finish, check lined, Each..... 4.00

Camp Blankets

Lined with canton flannel, 54x96 inches, weight 3 lbs. Per doz $36.00
Lined with canton flannel, 54x108 inches, weight 4½ lbs. Per doz. 42 00
Surface with plain sheeting, 45x72 inches. Per doz 15.00
Blankets made to order of any desired size.

Wool Blankets

Quality	Weight, Pounds	Size, Inches	Price Each.
Guy	5	76x80	$3 50
Klondike	10	64x80	6 00
Gray Army	10	64x80	7 50

Paper Blankets

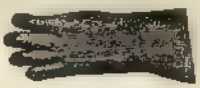
Size Inches.	Weight, Pounds	Price Each
48x72	2¼	$1 00

OUR SPECIAL WATERPROOF BLANKETS

We make them of all sizes and of different weights of duck.

RUBBER GLOVES

Short



With Gauntlet

BLACK OR WHITE RUBBER

SHORT GLOVES: Per doz.

25 Ladies', short, fine, sizes 6 to 9. .... $12.00
26 Men's, short, fine, sizes 10 to 12 ... . 13 50
27 Men's, short, fine, heavy driving, sizes 13 to 15 .... 18.00
28 Men's short, fine, heavy acid, sizes 13 to 15. 33.00

HALF LONG GLOVES:

29 Ladies', half long, fine, sizes 7 to 9 .. . 15 00
30 Men's, half long, fine, sizes 10 to 12 ... . 16.50
31 Men's, half long, fine, heavy drivings, sizes 13 to 15 . ... 24 00
32 Men's, half long, fine, heavy acid, sizes 13 to 15..... .... 36.00
Length of gauntlet on half long gloves is 5 inches.

LONG RUBBER GLOVES:

33 Men's, long heavy, sizes 13 to 15. ..... 39.00
Length of gauntlet on long gloves is 9 inches

Men's Boston Garters

Reliable Goods

Popular Sellers

No. 6194. Men's Boston Garter, good, strong, plain sea island web with braided cord, nickel trimmings, new patent rubber button with velvet grip clasp, full size, 1 doz. in box, assorted colors. Dozen ... 1.55

No. 6195. The Elco. Men's Boston Garter, fine mercerized silk web, ¾ in. with silk elastic cords, otherwise in make up and quality as above; each pair in box, 1 dozen in carton, assorted colors Dozen 2.04

THE POPULAR FLEXO GARTER.

No. 6126. Flexo Duke Silk Garter, ¾ in. wide, extra quality silk web, solid colors, highly polished nickel trimmings, button clasp, safety lock catch, each pair in sliding box. Dozen 1.90

ASSORTMENT OF GARTERS.

Handsome Cabinet Free.

No. 6188. Assortment of Men's Hose Supporters, consists of Wellington, Flexo and Polo styles, each well known and popular style goods. This cabinet gives full line of solid colors as well as fine assortment of ancy designs, all styles and patterns of webs, with slide button clasp, Flexo clasp, and the Wellington clasp, 3 dozen in a handsome cherry cabinet, glass sides, door in back, attractive self selling outfit for merchants Per cabinet of 3 dozen 5.00

Ladies' Fancy Garters

No. 6184. Ladies' Garter. Made of very finely frilled web, with fine satin bow and handsome embossed sliding buckles Each pair in fancy box, assorted staple colors, 1⅛ in. wide. Dozen ... .70

No. 6186. 1¼ in wide frill, web overshot silk center, satin ribbon bow knots to match color of web; highly nickle polished embossed sliding buckle. Assorted red, pink, blue, etc. Each pair in transparent cover box Dozen 1.25

No. 6131. Lucky Rabbit's Foot Garter, 1¼ in. wide, frill web, solid colors, fancy raised center, satin ribbon bows to match color of web. Rabbit's foot charm attached to bow. Fancy nickel plated buckle. Each pair in transparent top fancy box Dozen 1.75

6171 6170 6130

No. 6171. Ladies' Fancy Garters, 1¼ in fancy frill edge Jacquard web, best elastic, fine quality with fancy gilt buckles, satin ribbon bows, a leather purse on one garter, assorted colors, each pair in fancy box with transparent top, Dozen 1.75

No. 6170. Ladies' Fancy Garter, same style and quality as above with gold flat embossed buckles, "celluloid thermometer" on one garter, each pair in box. . Dozen 1.75

No. 6130. Ladies Garter Assortment, quality and make up as garters above, in three combinations in each dozen, viz.: One with gold buckle embossed "Hands Off," one with fancy gold buckles with mirror attached and one style with fancy buckle with celluloid Ace of Hearts on top, 3 excellent combinations, each pair in transparent cover box Per assortment, one dozen ... 1.75

Ladies' Fancy Garters

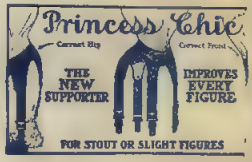
6173

No. 6172. Ladies' Fancy Frill Garters, extra fine quality, style of preceding ones, fancy horsehead embossed buckles, extra size silk bows, each pair in glass top box, all staple colors Dozen 1.95

No. 6173. Ladies' Fancy Garters, this is an extra fine quality of silk web, fancy frill sides with overshot ribbed centers, fine openwork Fleur de Lis gold buckle, extra large size silk ribbon bow, blue, pink and white, etc., each pair in glass top box. Dozen 4.00

Ladies' Hose Supporters

No. 6143. Venus Ladies' Hose Supporters. Consists of a web belt with imitation silk shield front, 2 tabs and pendants of similar material, 6 in. elastic frill web ends, nickel trimings They make the wearer stand erect, and are absolutely necessary to the correct dress of the properly clad woman. They give the military figure. Can be worn without corset with or without sets. Colors assorted in box. Per dozen 2.00



No. 6140. "Princess Chic" Hose Supporters, mercerized silk band and tabs, jean lined, frilled elastic web supporters, nickel buckles and trimmings, slide button clasp, adjustable, assorted colors, each in box. Dozen 4.10

Columbia Hose Supporters

Made of superior quality black web, ⅝ in. double non-elastic ends attached with safety pin, nickel plated slides and buckles, 1 dozen in box.

C. B. Baby's size. Doz. .40
C Misses' size. Doz .. .45
B Young Ladies' size. Doz .. .. .50
A Women's size. Doz. .55

No. 6135. Glendale Hose Supporters, this is a very special grade of strong cotton web, ⅞ in. wide, will wear better than any at similar price, nickel buckles, trimmings with a slide button catch, jet black.

	Doz.
CB Babies' size	.60
C Misses' size	.65
B Young Ladies' size	.70
A Women's size	.75

No. 6134. Stronghold Hose Supporters. Made of superior grade very strong loom web 1 in. wide, new style nickel sliding buckle with fiber button and loop, safety pin top, well made and finished article, intended for rough wear; an exceptional big value to retail at 10c.

A. Ladies' Size, Dozen	.85
B. Young Ladies' Size Dozen	.80
C. Misses' Size, Dozen	.75
CB. Babies' Size. Dozen	.70

No. 6137. Lily Hose Supporters, white, black pink and blue, assorted in box. Jean tab, canvas back, web belt, extra fine finish and make 4 pendant supporters elastic with web ends, nickel trimmings slide button clasp, one dozen in box Dozen ... 1.25

No. 6138. Diana Hose Supporter, large size tab, front made of embossed figured cloth, canvas back, web belt, 4 extra strong pendant supporters of frill web with corded center, 1⅜ in. wide, nickel buckles, slide button clasp, blue, pink, white and black, assorted one dozen in box, high grade goods. Dozen 1.75

No. 6139. Diana Hose Supporter, same style as above, with silk finished Jean tab and plain lisle and web supporters, one in. web, nickel buckles, slide button clasp, pink, blue, white and black, one dozen assorted in box. Dozen 2.00

Assortments.

No. 6156. Assortment of Stronghold Hose Suporters. This is a celebrated good wearing, strong loom hose supporter with nickel sliding buckle and fiber button and loop; ½ dozen each size, babies, Misses' young ladies and Women's, in display box. Stainless black. Per box 1.00

No. 6158. "Glendale" Hose Supporters, strong, double faced elastic web, ⅞ in., slide button clasp, black, two dozen in box assorted, child's, misses', young ladies', women's.
Per assortment of 2 dozen ... 1.40

Child's Combination Supporter

No. 6145. Child's Waist and hose supporter, re-inforced waist band, double stitched, one inch non-elastic shoulder strap with elastic back, four buttons looped in waist band; sliding buckles, black elastic hose supporters, non-elastic end, nickel slide and button clasp. Sizes 2 to 12, each in carton, one dozen in box, assorted sizes. Dozen 1.75

Assortment With Handsome Stand Free

No. 6150. Glendale Assortment of Hose Supporters, with an oxidized metal display stand free. This is a fine hose supporter, made of one inch double faced elastic web, very strong, neatly finished goods, nickel slides and supporter, buckles, with slide button clasp, regular iron clad wearing goods, one dozen each babies', misses', young ladies' and women's on a curved art metal stand, which is free. Per assortment of 4 doz. 3.00

Dandy Assortment of Men's Garters

No. 6189. The Dandy Assortment of Men's Garters. This is a glass top wooden show case, slanting front displaying 10 garters under the glass with a reserve stock of 26 pairs in a sliding drawer beneath; the assortment consists of plain and fancy colors, plaids and other staple patterns, fine lisle web mercerized silk cord, nickel plated trimmings loop and spring hook fastening. Show case complete with 3 doz. garters. 2.25

TRAYS

No. 83301

No. 83301 Ash receivers, metal trays in red, with bronze animals attached to side, assorted horse, deer, dogs, and cat diameter 4½ inches, 6 in package, not broken . . . . . Per doz. $2 40

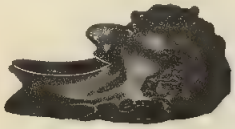
No. 83302

No. 83303

No. 83302 Bronze-finished metal ash receiver attached to metal horse, bronze finish, length 4½ inches, height 4 inches, 6 in package, not broken . . . . . Per doz. $4 00

No. 83303 Bronze finish, metal cup attached to metal moose, height 4 inches, 6 in package not broken 4 00

No. 83306



No 83308

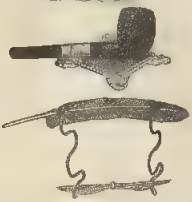
No. 83306 Ash tray, tinted china, design of playing cards on interior in natural colors, size 5x3½, 6 kinds assorted in package, not broken . . . . . Per doz. $4 00

No. 83308 China, Mephistopheles head in red, length 5¼ inches, 6 in package, not broken. 4 00

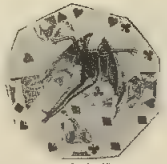
No. 83312

No. 83312 Fine china red sides, with assorted pictures of animals on center in natural colors, size 3¾x3¾, 3 kinds, 6 in package, not broken . . . . . Per doz. 4 00

No. 83322 Assortment of gold-plated metal trays with hand-painted and embossed pictures in gold-plated frames, each in box, 6 in carton, not broken . . . . . Per doz. $4 00



No. 83321



No. 83307

No. 83321 Assortment of gold plated and enameled ash receivers, pin trays, etc., put up each in box, 6 in carton, not broken . . . . . Per doz. $4 00

No. 83307 Card tray, white china has appearance of being made of playing cards, faces of cards in regular colors figure of Mephistopheles in center in relief diameter 6½ inches, 3 in package, not broken . . 8 00

No 83311

No. 83311 Trays with cigar rests, Royal Bayreuth china tinted in delicate green with rural pictures in natural colors, diameter 5 inches, 6 in package, 2 each 3 designs, not broken Per doz. $4 00

No 83316

No 83315

No. 83316 Card tray, copper-finished metal, embossed, size 5½x10½ inches . . . Per doz. $8 00

No. 83315 Old brass, revolving receptacle in top, diameter 3½ inches height 2½ inches 8 00

Nos. 83319 and 83320

No. 83324

No. 83319 Card receiver, imitation cut-glass tray with colored border, metal stand, height 7½ inches . . . . . Per doz. $8 00

No. 83320 Same as No 83319, height 9½ inches 16 00

No. 83324 Bright silver-finished metal, embossed, rococo design, height 3 inches, width 4½ inches 8 50

No. 83318

No. 83318 Pen tray, silver-finished metal, engraved, size 2⅞x9½ inches. . Per doz. $3 50

FIGURES

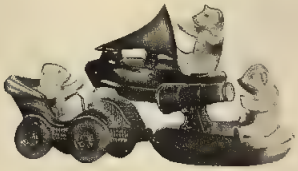
No. 87100 French bronze, assorted animals, average size about 2½x1¾, 12 in package, not broken ... Per doz. $1 50

No. 87101 Metal animals assorted, stag, full height 5 inches, horse, 2 dogs, donkey, and kittens, average height about 4 inches ... Per doz. $3 50

No. 87109 French bronze, 4 dogs and 2 rabbits, average size about 5x3 inches, 6 in package, not broken ... Per doz. $4 00

No. 87110 French bronze, elephant, deer, and 4 dogs, assorted, average size 5½x3½ inches, 6 in carton, not broken ... Per doz. $4 00

No. 87111 Bisque figures of young boys in different positions, height 4½ inches, 6 kinds assorted in package, not broken ... Per doz. $4 00



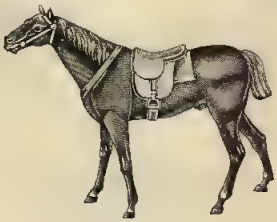
No. 87112 China, highly polished, bears in different positions, size 3½x4½, 6 kinds assorted in package, not broken ... Per doz. $4 00

No. 87104

No. 87105

No. 87105 Bronze metal horse and rough-rider, length 4¼ inches, height 4 inches, 3 in package, not broken ... Per doz. $3 00

No. 87104 Horse and Indian with tomahawk, length 4½ inches, height 4 inches, 3 in package, not broken ... 3 00



No. 87102 French bronze horse with saddle, height of head 5¾ inches, full length 6¾ inches ... Per doz. $8 00

No. 87103 Bronze elk, length 9 inches, full height 8 inches ... Per doz. $12 00

MAPS

RAND, McNALLY & CO.'S INDEXED POCKET AND VEST POCKET MAPS

These map scales range from 8 miles to 21 miles to the inch

	Vest Pocket Each	Pocket Each
Alabama, 21x28	$0 15	$0 25
Arizona Territory [illegible]	15	25
Arkansas, [illegible]	15	25
British Columbia, [illegible]	15	25
California, [illegible]	15	25
Colorado, [illegible]	15	25
Connecticut, 21x[illegible]	15	25
Delaware and Maryland in one book, 21x14	15	25
[illegible]	15	25
[illegible] 28x21	15	25
Idaho, 14x21	15	25
Ill[illegible] 21x[illegible]	15	25
[illegible]	15	25
[illegible]	15	25
[illegible] 28x2[illegible]	15	25
[illegible]	15	25
[illegible] 28x13	15	25
[illegible] 28x21	15	25
[illegible]	15	25
[illegible]	15	25
Maryland and Delaware [illegible]	15	25
Massachusetts, 28x21	15	25
[illegible]	15	25
[illegible]	15	25
[illegible]	15	25
[illegible]	15	25
[illegible]	15	25
[illegible]	15	25
[illegible]	15	25
New Hampshire 14x21	15	25
New Jersey, 14x21	15	25
New Mexico Territory [illegible]	15	25
New York, 24x28	15	25
North Carolina, 28x21	15	25
North Dakota, [illegible]x21	15	
Nova Scotia, New Brunswick and Prince Edward's Island 14x21	15	25
[illegible] 28x21	15	25
Ontario Prov. of Canada [illegible]	15	25
[illegible] 28x2[illegible]	15	25
[illegible]	15	25
Quebec Prov. of Canada 28x21	15	25
Rhode Island, 21x14	15	25
South Carolina, 28x21	15	25
South Dakota, 21x14	15	25
Tennessee [illegible]	15	25
Texas [illegible]	15	25
*[illegible] R. R. Map [illegible]		25
[illegible]	15	25
[illegible]	15	25
[illegible]	15	25
Washington 28x21	15	25
West Virginia [illegible]	15	25
Wisconsin 21x28	15	25
World [illegible]x28		25
Wyoming 14x21	15	25

*Without index

LARGE SCALE POCKET MAPS

		Size	Each
Sectional,	California So.	[illegible]	$0 60
	Florida,	2[illegible]x38	60
	Illinois,	[illegible]	1 80
	Indiana,	[illegible]	1 60
	Iowa,	48x36	1 80
	Kansas,	3[illegible]x22	60
"	Michigan,	41x58	1 80
"	Minnesota,	41x58	1 80
"	Missouri	[illegible]	1 80
"	North Dakota	33x23	60
"	Ohio,	[illegible]	1 80
"	South Dakota,	33x23	60

New Commercial, U. S. showing railroads and towns, new ed., size 58x41 ... 1 20

General U. S. Showing railroads and towns, new ed., 66x46 ... 1 80

Sectional, Washington showing railroads and towns, new ed., 60x40 ... 1 80

Sectional, Wisconsin, showing railroads and towns, new ed 40x54 ... 1 80

All above with the exception of those at 60 cents in cloth cover

RAND, McNALLY & CO.'S LARGE SCALE INDEXED WALL MAPS

Counties in colors. Congressional districts outlines. Show distances between stations on all railroads

Alabama, large scale, 44x56, scale 9 miles to 1 inch, full mounted ... $5 40
In Diamond Case ... 9 60

Arkansas, large scale, 44x56 scale 9 3 miles to 1 inch, full mounted ... 5 40
In Diamond Case ... 9 60

California, large scale, 44x56, scale 18 miles to 1 inch, full mounted ... 5 40
In Diamond Case ... 9 60

Florida, large scale, 44x56, scale 13 miles to 1 inch, full mounted ... 5 40
In Diamond Case ... 9 60

Illinois, large scale, 44x56, scale 9 miles to 1 inch, full mounted ... 5 40
In Diamond Case ... 9 60

Indiana, large scale, 44x56, scale, 7½ miles to 1 inch, full mounted ... 5 40
In Diamond Case ... 9 60

Iowa, large scale, 44x56, scale 9 miles to 1 inch full mounted ... $5 40
In Diamond Case ... 9 60

Kansas, large scale, 44x56, scale 11 miles to 1 inch, full mounted ... 9 60
In Diamond Case ... 9 60

Kentucky, large scale, 66x46, scale 7½ miles to 1 inch, full mounted ... 6 00
In Diamond Case ... 10 80

Louisiana, large scale, 44x56, scale 10 miles to 1 inch, full mounted ... 5 40
In Diamond Case ... 9 60

Michigan, large scale 44x56, scale 8 miles to 1 inch, full mounted ... 5 40
In Diamond Case ... 9 60

Minnesota, large scale, 44x56, scale 11 miles to 1 inch, full mounted ... 5 40
In Diamond Case ... 9 60

Mississippi, large scale, 44x56, scale 9 mile to 1 inch, full mounted ... 5 40
In Diamond Case ... 9 60

Missouri, large scale, [illegible] scale 11 miles to 1 inch, full mounted ... 6 00
In Diamond Case ... 10 80

Nebraska, large scale, 44x56, scale 12.5 miles to 1 inch, full mounted ... 5 40
In Diamond Case ... 9 60

Ohio, large scale, shows electric lines, 60x46, scale 9 miles to 1 inch, full mounted ... 6 00
In Diamond Case ... 10 80

Oregon, large scale, 44x 56, 11 miles to 1 inch, full mounted ... 5 40
In Diamond Case ... 9 60

Tennessee, large scale, 66x46, scale 8½ miles to 1 inch, full mounted ... 6 00
In Diamond Case ... 10 80

Texas, large scale, 66x46, scale 15½ miles to 1 inch, full mounted ... 6 00
In Diamond Case ... 10 80

Washington, large scale, 44x56, scale 10 miles to 1 inch, full mounted ... 5 40
In Diamond Case ... 9 60

West Virginia, large scale, 44x56, scale 9¾ miles to 1 inch, full mounted ... 5 40
In Diamond Case ... 9 60

Wisconsin, large scale, 44x50, scale 11 miles to 1 inch, full mounted ... 5 40
In Diamond Case ... 9 60

LARGE SCALE WALL MAPS

Each

California, Southern, Sectional [illegible] scale 6 miles to 1 inch, full mounted ... $2 40

Florida, Sectional [illegible] full mounted ... 2 40

Illinois, Sectional [illegible] showing Townships, full mounted ... 3 60

Indiana, Sectional [illegible] showing Townships, full mounted ... 3 60

Iowa, Sectional [illegible] showing Townships, full mounted ... 3 60

Kansas, Sectional [illegible] showing Townships, full mounted ... 2 40

Michigan, Sectional, 41x58, showing Townships, full mounted ... 3 60

Minnesota Sectional, 41x58, organized Townships, full mounted ... 3 60

Missouri, Sectional [illegible] showing Townships, full mounted ... 3 60

Nebraska Sectional, 58x33, showing Townships, full mounted ... 3 60

North Dakota, (new), Sectional, 33x23, showing Congressional Townships, scale 12 miles to 1 inch, full mounted ... 2 40

Ohio, Sectional (new), 51x44, scale 6 miles to 1 inch, showing organized Townships, full mounted ... 3 60

South Dakota, (new), Sectional, 33x23, showing Congressional Townships, scale 12 miles to 1 inch, full mounted ... 2 40

United States, General Railroad and County, with portions of Canada and Mexico, 66x46, scale 45 miles to 1 inch, compiled and drawn from the latest records of the United States Land Office and from the records of the Surveyor-General, on cloth and rollers for wall, full mounted ... 7 20

Same in Diamond Case ... 12 00

United States, New Commercial Map, including Canada, Mexico, West Indies. This is essentially a commercial map It shows only commercial features, viz., railroads and towns, with a few of the important rivers, lakes, etc. Counties are not shown We recommend this as our best small map of the United States. Scale about 55 miles to 1 inch; size 58x41; mounted on heavy cloth, with moulding at top and bottom, ready to hang on the wall, full mounted ... 4 80

Same in Diamond Case ... 8 40

Washington, (new), Sectional and Topographical, 60x40, showing Congressional Townships, Wagon Roads, etc., full mounted ... 3 60

Wisconsin, Sectional, 40x54; organized Townships, full mounted ... 3 60

Dominion of Canada. A new map prepared under the direction of the Canadian Government on the natural spherical projection, size 66x48, scale 58 miles to 1 inch, full mounted ... 6 00

In Diamond Case ... 12 00

Full mounted. When a map is said to be full mounted we mean that it is backed with cloth and provided with common rollers at top and bottom to hang on the wall

Diamond Case. When a map is furnished in Diamond Case, it is backed with strong cloth and attached to an automatic spring roller in case so that it may be pulled down and rolled back to the case at will

W. & A. K. JOHNSTON'S UNRIVALLED SERIES OF EDUCATIONAL MAPS

American Edition. Revised to the present date. Beautifully lithographed in permanent colors. Cloth mounted with common rollers

The following maps constitute the series:

	Size	Each
United States, Canada and Mexico	41x54	$1 70
Western Hemisphere	41x54	1 70
Eastern Hemisphere	41x54	1 70
Europe	[illegible]	1 70
Asia	[illegible]	1 70
Africa	[illegible]	1 70
North America	[illegible]	1 70
South America	41x54	1 70

In Sets — Each

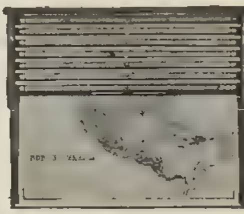
*Common School Set (United States Canada and Mexico, Western Hemisphere, Eastern Hemisphere and Europe) on common roller ... $6 80

Complete Set of eight maps on common roller ... 13 60

*Any other maps in the series may be substituted at same price.

SHIELD MAP CASE

Holds one map only Made of oak, nicely finished Neat, durable, dust proof. Has hinged back, for easy removal of map. Any map in the series in shield case ... $3 60



Johnston Spring Roller Case
Showing eight maps, with one drawn down

JOHNSTON SPRING ROLLER CASE

Made of oak. Dust proof, with lock and key

Neat, light, strong and convenient, keeping maps perfectly clean. Map may be removed from case if desired, by simply unhooking hinged back The case is tongued and grooved all around, making it absolutely dust proof

Per set

Johnston Case, with Common School Set of four maps $14 00
" " " Complete Set of eight maps ... 22 00

RAND, McNALLY & CO.'S UNIVERSAL SERIES OF EDUCATIONAL MAPS

Especially designed and engraved for use in schools. Single maps full mounted on heavy cloth, with common rollers.

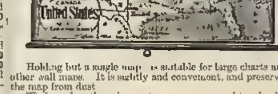
	Size	Each
Western Hemisphere	41x58	$1 70
Eastern	41x58	1 70
North America	41x52	1 70
South	41x52	1 70
United States, Canada and Mexico	41x52	1 70
Europe	41x52	1 70
Asia	41x52	1 70
Africa	41x52	1 70

In Sets — Each

Common School Set (Eastern Hemisphere, Western Hemisphere, Canada, United States, Mexico, and Europe) ... $6 80

Complete Set of eight maps ... 13 60

THE DIAMOND MAP CASE



Holding but a single map is suitable for large charts and other wall maps. It is sightly and convenient, and preserves the map from dust

We furnish with each case two screw eyes and two hooks, with which to attach it to the wall

Each

Any single map of "Universal" series, mounted on spring roller, in "Diamond" case ... $3 60

GLOBES

No 1

Nos. 10 and 20

No 1.0

No 112

The following new line of globes, in the 8 and 12-inch sizes is made for the purpose of furnishing substantial globes having maps correct to date, that may be sold at the lowest possible price The maps and globe balls are practically the same as in the high grade line

No.		Per doz
1	9-inch, shows at a glance the comparative sizes of the different nations	$6 70
		Each
10	Heavy copper wire stand, 8 inch	3 00
20	" " " 12 "	7 00

No		Plain	Each
110	8-inch		$4 00
120	12 "		8 00
140	18 "		24 00
		Movable meridian	
112	8-inch		$6 50
122	12 "		10 00
142	18 "		30 00

Nos 212, 312, and 412

No		Each
212	Meridian, 8-inch, scale 1 inch = 1,000 miles, polished bronze stand and movable meridian, width of base 8½ inches height 15 inches	$8 00
312	Meridian, 12-inch, scale 1 inch = 676 miles, ornamental bronze stand, handsomely finished, movable bronze meridian, width of base 10 inches, height 22 inches	12 50
412	Meridian, 18-inch scale 1 inch = 442.5 miles, highly finished bronze stand and meridian width of base 13 inches, height 32 inches	33 50
214	Full mounted, 8-inch, scale 1 inch = 1,000 miles, highly finished bronze stand, movable bronze meridian, width of base 8½ inches, height 15 inches	10 70
314	Full mounted, 12-inch, scale 1 inch = 676 miles, ornamental bronze stand, handsomely finished movable bronze meridian, width of base 10 inches height 22 inches	17 40
414	Full mounted, 18-inch, scale 1 inch = 442.5 miles, highly finished bronze stand and meridian, width of base 13 inches height 32 inches	40 00

Nos. 214, 314, and 414

No Nos 210, 310, and 410

No. 114

No		Each
210	Plain, 8-inch, scale 1 inch = 1,000 miles, ornamental bronze stand, handsomely finished, width of base 8½ inches height 14½ inches	$6 00
310	Plain, 12-inch, scale 1 inch 676 miles, ornamental bronze stand, handsomely finished, width of base 10 inches, height 20 inches	10 16
410	Plain 18-inch, scale 1 inch = 442.5 miles, highly finished bronze stand, width of base 13 inches, height 30 inches	26 00
	Full mounted movable meridian	
114	8-inch	8 00
124	12 "	13 50
144	18 "	35 00

Nos 195 and 194

No. 594½

No		Each
195	12-inch, Japanese bronze stand bronze meridian full mounted, revolving axis, glass socket casters, height 36 inches	$32 00
194	18-inch, without compass, Japanese bronze stand, bronze meridian, full mounted, revolving axis, glass socket casters, height 44 inches	64 00
594½	18-inch, scale 1 inch = 442.5 miles revolving axis, full mounted The stand is of polished gallery or antique oak, movable bronze meridian This globe is designed for the finest libraries	80 00

Buy a Real Motorcycle

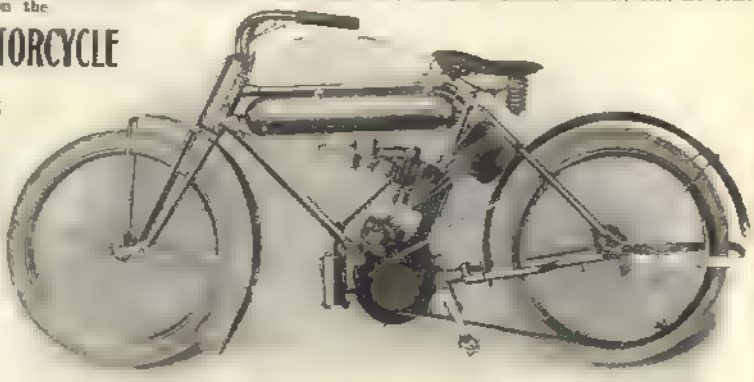
THE M. M. SPECIAL—because it has the STRENGTH to carry you everywhere, POWER to climb any grade, SPEED that has no equal, STABILITY to negotiate every road anywhere, ENDURANCE that knows no limit, a PERFECT CONTROL, so simple and easy that you have absolute confidence in the machine from the very start.

WE ARE MAKING IMMEDIATE DELIVERIES AND NOT PROMPT PROMISES

M. M. SPECIALS are all equipped with the new perfect 3 leafspring fork, the only real spring fork used in motorcycle construction. This, together with its 3½ H. P. special balanced engine, low frame construction, patent motorcycle stand, flexible double grip control, priming device on fuel tank, newly designed cylinder, muffler, etc., are some of the features on the

REAL MOTORCYCLE

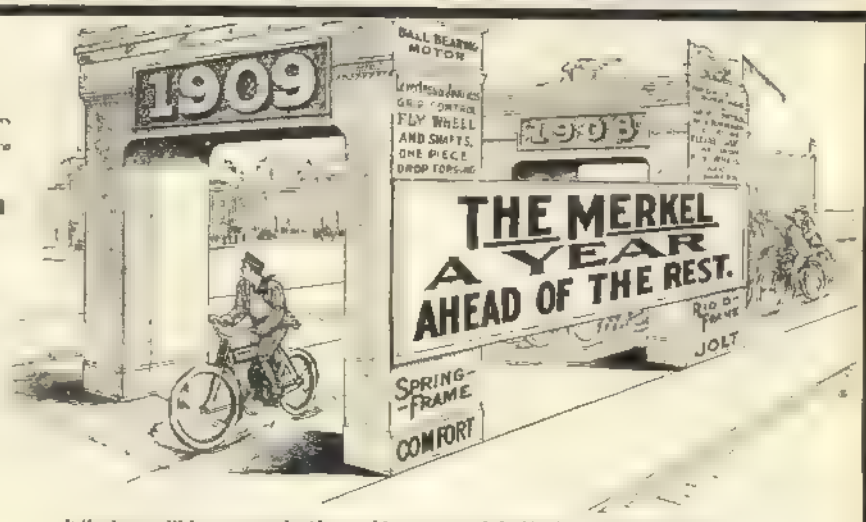
for 1908



AMERICAN MOTOR CO.

715 CENTRE ST.,

Brockton, Mass.



There Is No Question About the Leadership of the Merkel

It "makes good" for motor-cycle riders, and is a strong trade builder for motor-cycle dealers.

THE 1908 MERKEL

stands to-day where other motorcycles will be in 1909. It has just happened that the Merkel sales are increasing faster than these competitors, it is because its points of superiority make the Merkel give absolute satisfaction and gain for it the recommendation of every man who rides or sells it. With its Spring Frame and extra long Wheel Base with the speed assured by its 3 H. P. Ball Bearing Motor (with Magneto Ignition if desired), and the safety afforded by its Double Grip Control, the Merkel easily maintains its leadership.

Price, $210. With Spring Fork $225. With Magneto Ignition, $40 additional

MERKEL MOTOR CO., 1098 26th Avenue, Milwaukee, Wis.

REPRESENTATIVES:

Pacific Coast, Collier & Worthington, 1030 So. Main St., Los Angeles, Cal. Chicago and Cook County, Ill.: L. H. Whitlock, 900 W. Jackson Blvd., Chicago. New York, Jersey City and Long Island: E. J. Willis Co., 8 Park Place, New York. Brooklyn, N. Y.: John Prieiger, 1664 Bushwick Ave., Brooklyn, N. Y. Cleveland and Northeastern Ohio: L. Muegler, Woodland Ave., Cleveland, O.

Chafing Dish Utensils and Meteor Coffee Pots

Manufactured and Guaranteed by Manning, Bowman & Co.

SPOON

No. 1055 Nickel silver, silver plated, rococo trimmed, genuine ebony handle.... .... each $3 00

FORK

No. 1055 Nickel silver, silver plated, rococo trimmed, genuine ebony Landle . . ..each $3 00

TOASTER

No 19 Nickel plated, 10 inches....each $3 00

FLAGON

No. 22 Nickel plated, pours when knob is pressed.....each $3 80

CUTLET DISH

No. 18 Nickel plated, for cooking steaks, chops, etc.....each $3 05

No. 7792 2 pints or 5 cups.....each $10 80
No. 7793 3 pints or 8 cups .....each 12 50
No. 7794 4 pints or 10 cups. ...each 13 50

Meteor Circulating Coffee Percolator

Nickel plated on planished copper, silver lined.

Always insures delicious coffee and saves one-third.

By this process of percolation coffee of the most delicious flavor and of any strength desired can be made on the table in a few minutes Coffee made by this method is superior as a beverage, as it is distilled and not boiled. By this automatic circulation process the entire strength is extracted which proves it to be the most economical method of producing coffee of the finest flavor.

It cannot overflow and requires no watching. Any one can use it, no previous knowledge of its construction being necessary. All parts are interchangeable and can be replaced separately.

The Meteor Lamp is a perfect regulator When the coffee is made the flame can be reduced to keep the contents of the pot hot without boiling.

No. 1093 2½ pints or 6 cups.....each $15 50
No. 1094 3½ pints or 9 cups.....each 16 50
No. 1095 4½ pints or 12 cups.. .each 18 25

No. 993 2½ pints or 6 cups.....each $15 50
No. 994 3½ pints or 9 cups.... .each 16 50
No. 995 4½ pints or 12 cups . .each 18 25

A—Glass Globe and Filter. *B*—Reservoir. *C*—Valve.

The steam generated forces the water continuously up through the central tube, spraying it over the coffee, which percolates through it until all the flavor is extracted.

STOVE PERCOLATOR

Principal same as those with lamps.

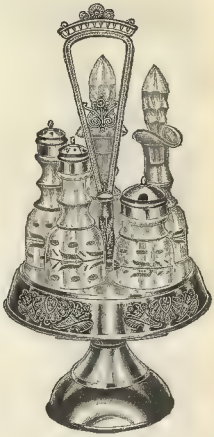
No. 6292 2 pints . . . . . each $5 15
No. 6293 3 pints.....each 6 00
No. 6294 4 pints.....each 6 80
No. 6295 5 pints.....each 7 85

FINE QUALITY QUADRUPLE SILVER PLATED CASTERS.

PRICES EACH.

No. H 429 CASTER—$4 70.
Burnished and chased, 5 bottles height 15 inches.
Homan Mfg. Co.

No. W 136 CASTER—$6 00.
Chased finish, 5 engraved bottles, height 14½ inches.
E. G. Webster & Son.



No. W-139 CASTER $4.00.
Chased and burnished & engraved bottles height 15 in.
E. G. Webster & Son.

No. H-1071 PICKLE CASTER—$4.00.
Onlayed glass jar, gilt decorations, height 10½ inches.
Homan Mfg. Co.

No. H-1063 PICKLE CASTER—$3.20.
Crystal decorated jar, height 10½ inches.
Homan Mfg. Co.

No. H-1067 PICKLE CASTER—$4 40.
Crystal decorated jar, height 10½ inches
Homan Mfg. Co

MANTEL MISSION CLOCKS.

MINHO.

Height 12 inches, Width 4½ inches, Dial 3 inches, Solid Oak Case, Flemish Finish, Fitted with Pendulum Movement, with Brass Hands and Numerals, One-day Time.
Each, - - $2 80

MINCH.

Height 12 inches, Width 4½ inches Dial 3 inches, Solid Oak Case, Flemish Finish, Fitted with Pendulum Movement, with Brass Hands and Numerals, One-day Time.
Each, - - $2 80

MINAS.

Height 12 inches, Width 4½ inches, Dial 3 inches, Solid Oak Case, Flemish Finish, fitted with Pendulum Movement with Brass Hands and Numerals, One day Time.
Each, - - $2 80

PALOS.

Height 13½ inches, Width 5½ inches, Dial 4 inches; the Case is Solid Oak, Flemish Finish, Wood Dial with white Arabic figures painted on a dark blue background, Brass Hands, fitted with Pendulum Movement.
Each, - - $3 50

MORO.

Height 13 inches, Width 6½ inches, Dial 4 inches, the Case is Solid Oak, Flemish Finish, Wood Dial with white Arabic figures painted on a dark blue background, Brass Hands, fitted with Pendulum Movement, One-day Time.
Each, - - $3 50

VEGA.

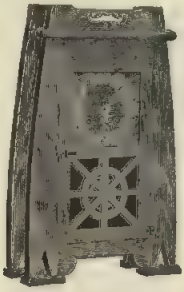
Height 13 inches, Width 6 inches, Dial 4 inches, the Case is Solid Oak, Flemish Finish, Wood Dial with white Arabic figures painted on a dark blue background, Brass Hands, fitted with Pendulum Movement.
Each, - - $3 50

SAN PEDRO.

Mantel Weathered Oak Mission Clock six inch Dial with Brass Numerals and Hands, Height 19 inches, Width 12½ inches, Eight day, Half-hour Strike on Cathedral Gong.
Each, - - $5 55

LOS BARRIOS.

Mantel Weathered Oak Mission Clock, six inch Dial with Brass Numerals and Hands, Height 18½ inches, Width 11½ inches, Eight-day, Half hour Strike on Cathedral Gong.
Each, - - $4 90



SAN BENITO.

Mantel Weathered Oak Mission Clock, Wooden Dial with white figures on a background of cobalt Blue, fancy Brass Hands, Height, 21 inches, Width, 13½ inches, Dial 6 inches.
Each, - - $6 25

MORLEY-MURPHY HARDWARE COMPANY, GREEN BAY, WIS.

For Real Economy Get a CADILLAC

$1000

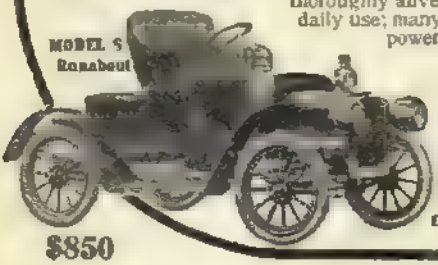
Repair Cost, 50 Cents a Week—Over 18 Miles per Gallon of Gasoline

Actual figures are the strongest argument for economy. Here they are—averages obtained from the *sworn* reports of a large number of single-cylinder Cadillac owners, taken at random from all over the United States, covering all imaginable road conditions—mountains, hills, sand, snow, mud. The story they tell is of vital interest to every prospective purchaser. Read it in

"The Truth About the Automobile and What It Costs to Maintain One"

sent free on request for Booklet No. 8.

These figures—by disinterested people—conclusively *prove* Cadillac economy. The cars themselves prove their service and durability. You see these sturdy, rugged little machines everywhere—always thoroughly alive to any test or requirement—*always going*. There are 16,000 in daily use; many of them are in their sixth season, yet they are just as smooth, powerful and reliable as ever, with never even a suggestion of failing.



$850

In fact, we have yet to hear of the first one put aside because unfit for further use. This is *real* automobile service—the Cadillac kind.

Capable of thirty miles an hour; offers the fullest complement of that pleasure, convenience and [illegible] a car like the Cadillac can afford. Described in Catalog No. 8.

Prices include pair dash oil lamps, tail lamp and horn.

CADILLAC MOTOR CAR CO., Detroit, Mich. *Member [illegible]*

PALMER SINGER

All Cars Sold by Us are Licensed under Selden Patent and Guaranteed for One Year

PALMER-SINGER TOWN AND COUNTRY CAR, 28-30 H. P., $3,000

Palmer Singer Four - Forty, Seven Passenger, 40 H. P. Touring Car, $4,000

Palmer Singer Six - Fifty, 6 Cylinder, 50 H. P., $2,450.

Palmer - Singer Four - Thirty, The Skimabout, 4 Cylinder 30 H. P., $1,950.

Palmer Singer Six Sixty, 6 Cylinder, 60 H. P., $2,850.

You can't use the $6,000 imported town cars for touring—too heavy—not enough power. The Palmer-Singer Town and Country Car—open or closed, which and whenever you like—has ample power for any roads, any hills and is besides the BEST town car money can buy.

Sole Distributors of the SIMPLEX

PALMER & SINGER MANUFACTURING COMPANY
1620-22-24 Broadway, NEW YORK 1321 Michigan Ave., CHICAGO

Metropolitan Distributors of the SELDEN

National MOTOR CARS

"The All Ball-Bearing Cars"

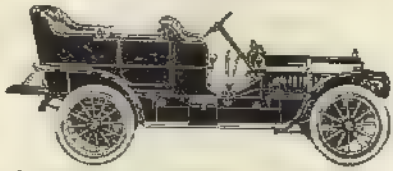
The 1908 Line consists of

Two 4-Cylinder and Two 6-Cylinder Models

In Touring Cars, Limousines and Roadsters

each equipped with

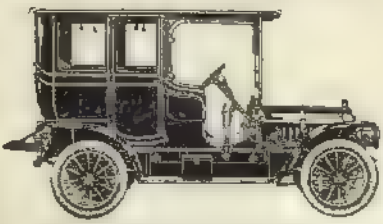
National Ball-Bearing Motors



The entire line embodies the tried and proven NATIONAL type of construction, refined and perfected in all details to the highest possible degree.

National Model K, 4-cyl.,	4½x5,	$3500
National Model N, 4-cyl.,	5x5,	3700
National Model R, 6-cyl.,	4½x4¾,	4200
National Model T, 6-cyl.,	5x5	5000

Each Machine Carries 7 Passengers Comfortably



Write for Descriptive Matter

National Motor Vehicle Co.

1003 East 22d Street

Indianapolis, Ind.

Apply this TEST to the STEVENS-DURYEA

Here's a simple quality test you can make for yourself prior to purchasing a motor car. Make a visit to the second-hand dealers and consult the "Automobiles for Sale" columns in the newspapers and Automobile Journals. It is obvious that the cars which are the most difficult to secure and depreciate the least in value are the cars of quality.

It is difficult to find Stevens-Duryea cars in the second-hand market. They are not built on the change-models-every-year plan—they are not out-of-date in a season. Moreover the Stevens-Duryea Unit Power Plant and Three Point Support make possible a car of wonderful simplicity and durability. Therefore the small price-depreciation in the Stevens Duryea when you *do* find one.

Apply this test for yourself. Measure the Stevens-Duryea with any other car on this basis. The second-hand market is a barometer of automobile quality. Every car then stands on its merits alone.

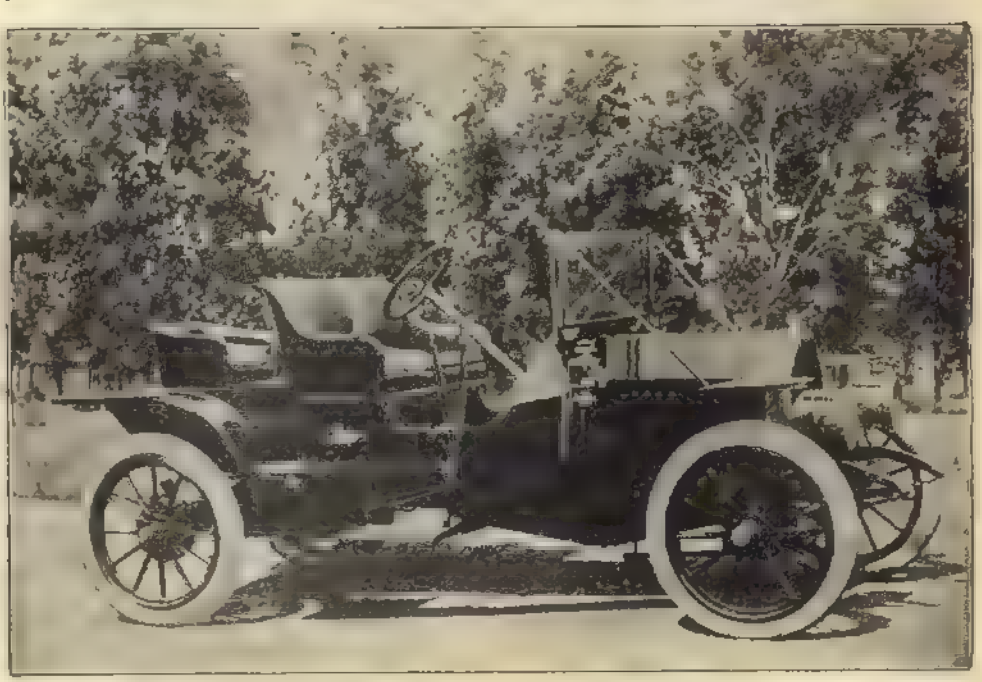
Stevens - Duryea Co.

Chicopee Falls, Mass.

Members A. L. A. M.

Here's a Hot One Right Off the Griddle

Moline



A Remarkable Car for Little Money

A car which has a lot of good points; so many, in fact, that printer's ink tells only half the story—a story well worth listening to, if you want a run for your money.

The MOLINE Nineteen-Niner

IS SNAPPY—RAKISH—RACY

But That's Not All It Has **Three-point Suspension Unit Power Plant. Lots of Power and Speed—a Hill Defier and Time Annihilator. Every Working Part Easily Accessible. Magneto when Desired**

Eastern Agents Should Investigate Before Closing 1909 Contracts

Moline Automobile Co. Standard Manufacturers, A. M. C. M. A **East Moline, Ill.**

MORLEY EASY-ROLLING SHELF LADDERS.

DESCRIPTION.

Ladders The Ladders are all made of thoroughly seasoned hardwood, either Oak, Ash or Cherry being used. They are made strong and durable, being well stayed with corner irons, and are perfectly safe, whether used by a light or heavy person. We take particular pains with the finishing of our Ladders, the wood first being filled and then finished with several coats of varnish, making them highly ornamental in appearance.

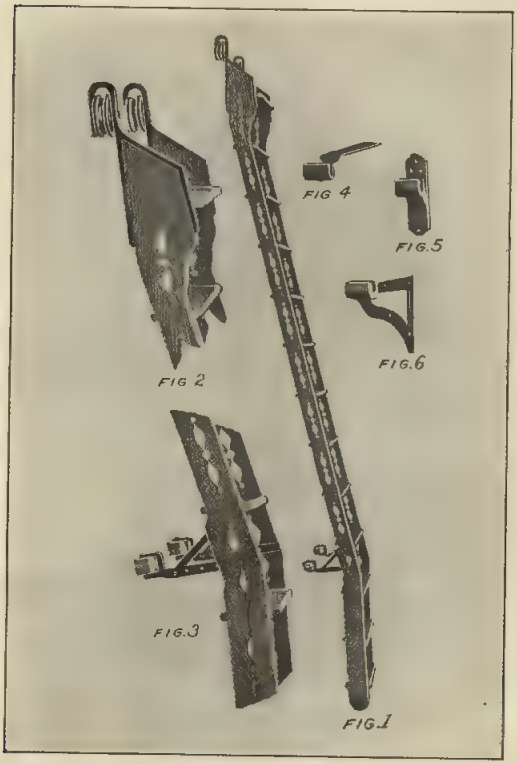


Fig 1 shows the Ladder complete.
Fig. 2 shows the Hanger supporting top of Ladder.
Fig. 3 shows the Fender supporting bottom of Ladder.
Fig. 4 shows the Shelf Bracket.
Fig. 5 shows the Face Bracket.
Fig. 6 shows the Side Bracket.

Hangers—Are made very strong, the sheaves being well babbeted, making them run easily and noiselessly.

Fenders Are made of Wrought Iron, with Broad Face Roller covered with Rubber to take up vibration and prevent noise.

Rail—Is made of Steel planed on top. It is very strong and rigid when in position.

Brackets Are made in three styles, viz.: Shelf Brackets to be used when shelving is supported by spindles; Face Brackets used where standards have pilasters 1¾ inches or more in width; Side Brackets used where shelving is supported by ⅞ or 1 inch standards without pilasters. See cuts.

INSTRUCTIONS FOR ORDERING.

Give following measurements: Height of base shelf from floor, width of base shelf, distance from top of base shelf to where rail is to hang, usually opposite shelf about two feet from top of shelving

RAIL—Give entire length of each line of shelving from outside to outside end, and say if rail should be turned up at ends to prevent ladder running off.

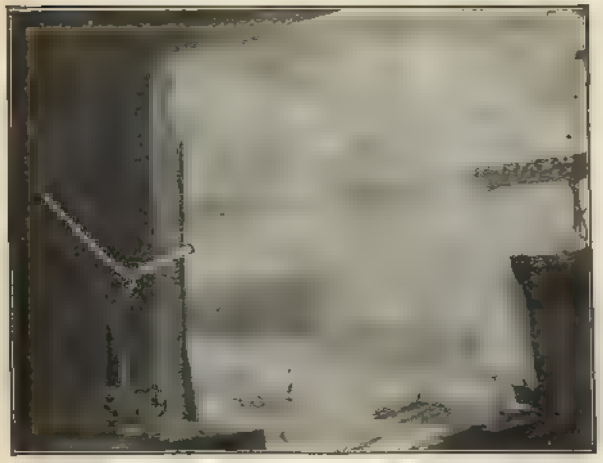
BRACKETS—Give number of standards for each line of shelving and say if built with pilasters 1¾ inches or more in width. See cuts of Brackets on this page.

Ladders, up to 10 feet in Length, complete, with Hangers and Noiseless Rubber Fender Rollers, - Each, $15 00
Add 50 cents to list price for each additional foot in length.

Planed Steel Rail, complete, with Brackets, Screws, etc., ready to be put up, - Per foot, $0 34
Write for Discount and Special Ladder Catalogue with Order Blank.

MORLEY-MURPHY HARDWARE COMPANY, GREEN BAY, WIS.

THE MORSE "MONITOR" NOZZLE



As used on Freight Piers by Grand Trunk Railway

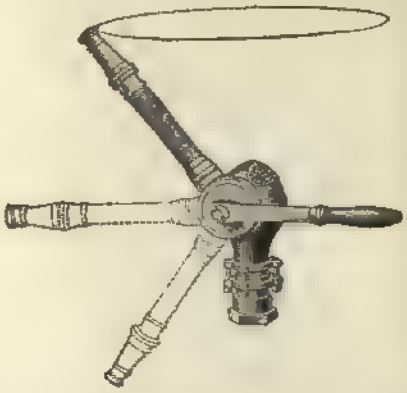


Fig. A Nozzle

For use on mains, standpipes, roofs, etc., for fire protection of all classes of buildings; for tugs for fire fighting about harbors, for fire departments on fireboats, water towers, hose wagons, chemical engines, etc. The "Monitor" is attached directly to standpipe or main without the use of hose it requires no repairs and is always ready for instant service, and stream once started will not deviate under pressure Will completely rotate on base, and stream can be elevated or depressed to cover desired spot. Fully approved by all fire underwriters.

FIGURE A

For inside or outside use on standpipes; 2 or 2½ inch inlet, 1½ stream. Price, $55.00.

Hundreds in use on mills, car houses, freight sheds, stores, etc.

FIGURE B with Wheels and Gears

Used on fireboats, water towers, hose wagons, tugboats, etc.

First size, 7 to 10 in. inlet, 5½-in. stream.$900.00
Second size, 4 to 8 in. inlet, 3-in. stream. 400.00
Third size, 3 to 4 in. inlet, 2-in. stream. 275.00

FIGURE B with Lever

Used on work same as Fig. B, and also for piers, mills and lumber yards.

First size, 4 to 8 in. inlet, 3-in. stream..$275.00
Second size, 3 to 4 in. inlet, 2-in. stream.. 175.00

FIGURE C

For use on small tugs, roofs or about yards, on a 4-inch standpipe or on flanged hydrants. It has two outlets in base, to which hose can be attached. Has 4-inch inlet, 1½-inch stream and two 2½-inch hose streams. $95.00.

FIGURE D

To be placed on truck and wheeled to any desired point and to have three lines of hose attached from steamers or hydrants. Provided with a three-way Siamese, with screw or automatic valves, as desired. Used by many flour mills and on hose wagons.

Three 2½-inch inlets, 1½ to 2 inch stream, price $175.00

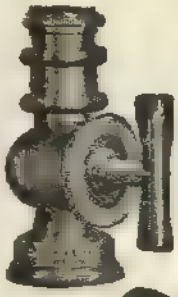
FIGURE E

For hose wagons and chemical engines. Two inlets, 2½-inch automatic valves.

1½ to 2 inch stream, price.....$175.00

FIGURE F

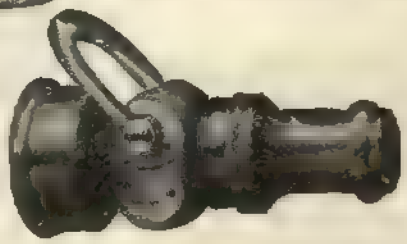
For hose wagons and water towers,
2-way auto. Siamese 2½-inch, 1½ to 2-inch stream.. .....$200.00
3-way auto. Siamese 2½ inch, 1½ to 2-inch stream..... ..... 225 00



MORSE SHUT-OFF NOZZLE

A low-priced and well-made stop nozzle, has 1 or 1¼ inch outlet, as ordered, and will be fitted to any pipe. Price.....$7.50
With folding handle.....8.50

THE "CALLAHAN" NOZZLE



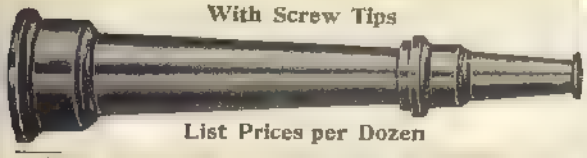
The water can be shut off instantly by one movement of the handle; it weighs only 2½ lbs.; when open it presents an unobstructed waterway of any size required; when closed it is perfectly watertight.

Price, 1¼-inch, $15.00; 1½-inch.....$17.50
With single spray attachment..... 22.50
With double spray attachment..... 25.00

Send for complete illustrated catalog

BRASS HOSE PIPES OR NOZZLES

With Screw Tips



List Prices per Dozen

Size Inches	Length Inches	Hose-Pipe Thread	Iron Pipe Thread
¾	7½	$ 8 00	$ [illegible] 20
¾	12	10 00	[illegible] 20
1	8	[illegible] 00	[illegible] 20
1	[illegible]	[illegible] 00	13 30
1	[illegible]	20 00	2 20
1¼	[illegible]	24 00	[illegible] 00
1½	13	27 00	7 50
1½	[illegible]	30 00	32
1½	20	36 00	39 00
2	12	38 00	41 00
2	15	55 00	18 00
2	20	[illegible] 00	55 00
2½	15	75 00	78 [illegible]
2½	20	95 00	[illegible]
2½	24	00 00	1[illegible]
2½	30	[illegible]	150 00
3	6	57 [illegible]	163 00

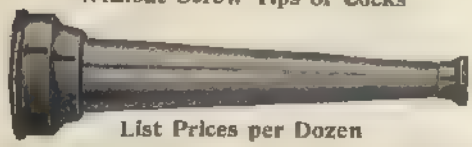
With Cocks

List Prices per Dozen

Size, Inches	Length Inches	Hose-Pipe Thread	Iron Pipe Thread
¾	8	$ 11 [illegible]	$ [illegible] 20
¾	12	18 [illegible]	[illegible] 20
1	8	15 [illegible]	[illegible]
1	12	[illegible]	23 00
1¼	[illegible]	[illegible]	[illegible] 30
1¼	[illegible]	[illegible]	50 [illegible]
1½	12	55 00	60 [illegible]
1½	15	65 00	74 [illegible]
2	12	80 [illegible]	82 00
2	20	[illegible] 00	113 00
2	25	130 00	143 [illegible]

SHORT BRASS HOSE NOZZLES

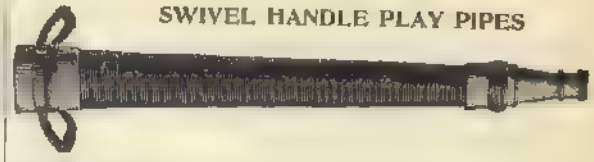
Without Screw Tips or Cocks



List Prices per Dozen

Size, Inches	Length, Inches	Hose-Pipe Thread	Iron Pipe Thread
¾	4	$ 5 00	$ 6 00
¾	6	7 00	8 00
1	4	5 00	[illegible] 5
1	8	9 00	11 00
1¼	4½	12 00	13 75
1¼	12	18 00	[illegible] 75
1½	5	18 [illegible]	9 75
1½	12	22 00	24 00
2	6½	25 00	26 00
2	12	3[illegible] 00	30 00
2½	7½	37 00	39 50
2½	12	55 00	60 00
2½	15	65 00	68 00
2½	22	90 00	92 00

SWIVEL HANDLE PLAY PIPES



The advantages of swivel handle pipes are

First. That the handles are placed in such shape as to conform to the position of the pipeman without cramping the hand or [illegible] unnatural position.

Second.—It often happens that the hose turns two or three times over when the water is forced through it. If the handle did not swivel so as to allow the pipe to rotate, it would wrench it from the pipeman and subject him to danger and the pipe to harm.

List Prices

Size, inches	2	2½	2½	2½
Length, inches	20	24	30	30
Wound and Painted . . . each	$9 00	$11 00	$12 00	$15.00
Plain Brass	7 50	[illegible] 50	1[illegible] 00	13 50

GARDEN HOSE NOZZLES

"Mystic"

"Magic"

Price each, ¾-inch... $0 50

SIAMESE CONNECTIONS

To Divide One Stream

2½-inch each

To Unite Two Streams

$10 00

HYDRANT GATES

Single

Double

They are attached to the hydrant so that one stream can be stopped without interfering with the other.

2½-inch single each $[illegible] 00

2½ " double " [illegible] 00

HOSE VALVES

All with leather disc and with either wheel or tee handle.

Size, inches	¾	1	1¼
Price each	$1 65	$3 15	$3 70
Size, inches	1½	2	2½
Price each	$4 75	$7 [illegible]	$8 50

SIAMESE CONNECTIONS

For Stand Pipes

Size inlet pipe 3 inches, size both nozzles 2½ inches.

Price each $15 00

TOYS—Continued

AUTO WAGONS

Prices do not include either lamp or horn

No. Each
127 "Pullman" auto, special auto red finish, striped with gold bronze and decorated, gear and wheels enameled green, 8 and 14 inch tinned wheels ⅜-inch rubber tires, 12x30 inches, weight crated 30 pounds . $7 00

No. Each
128 "Cinch" auto, finished in electric blue, gold striping, seal brown panels trimmed with polished brass, gear and wheels enameled green 8 and 14 inch tinned wheels ⅜-inch rubber tires, size 13x35½ inches, weight, crated, 55 pounds $11 00

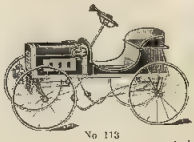
No. 111

No 108

No. Each
111 "Mors" auto, special auto red finish striped with gold bronze and decorated, hinged seat, large compartment under seat, 12 and 18 inch tinned wheels, ⅜-inch rubber tires on steel, green gears, size 14x34 inches, weight, crated 35 pounds. $9 00

108 "Toledo" tandem, bright red finish, gold bronze striping, upholstered in crimson embossed mohair plush, 12 and 18-inch tinned wheels, ⅜-inch rubber tires on steel, sheet steel dash, width 15 inches length 47 inches, weight, crated, 55 pounds 15 00

No. 109 and 110



No 113

No. Each
109 "Columbia" automobile carmine finished outside, green inside gold bronze striping, decorated 10 and 16 inch tinned wheels, ⅜-inch rubber tires, size 14x30 inches, weight, crated, 30 pounds $8 40

110 Same as No 109, 12 and 18 inch wheels, size 15x36 inches, weight crated, 45 pounds 9 50

113 "Standard" auto, special auto, red finish, olive green stripes, polished brass trimmings, 18-inch green enameled wheels, ½-inch rubber tires, green enameled gears, size 15x40 inches weight, crated, 55 pounds. 14 00

HAND CARS

No. Each
114 Junior Irish Mail, built for small children from two to six years of age, same as regular Irish Mail except a smaller size, the front wheels are 6 inches in diameter, the rear wheels 8 inches in diameter, seat 6x14 inches, lever 11 inches long, wheel base 23 inches, tread 12 inches the height of seat from floor is 9 inches, and the car will run about 5½ feet to one complete stroke of the lever has rubber tires $6 50

No. Each
115 Irish Mail hand car for boys or girls from four to twelve years of age 8x12-inch wheels, ½-inch rubber tired, geared for speed $7 30

No. Each
4 Glascock's Racer, built for children from two to six years of age, all parts are smaller in proportion than the other Glascock Racers, 8 and 10-inch wheels, ⅜-inch rubber tires $7 00

No. Each
116 Ironsides hand car, for children from six to fifteen years of age same as the regular Irish Mail with the exception that the reaches are made of steel 3-16 inch by 1 inch, the dimensions of the car in every way are the same as the Irish Mail, the workmanship and materials are of equal quality, the seat is painted red with appropriate stripes and transfer designs, the iron work is enameled black and the wheels are tinned with ½-inch rubber tires. $7 30

No. Each
107 "English Mail" hand car, black frame and seat, green gears and springs, red and white stripes, 10 and 16 inch tinned wheels, ⅜-inch rubber tires milled sprockets, geared, length 43 inches, width 22 inches, height from floor to top of handle 32 inches, size of seat 9x20 inches $8 40

No. Each
1 Glascock Racer, 2 driving levers connected by double pitman rods to the crank, gives 3 interchangeable motions, seat is finished in royal blue, all metal parts except the wheels are finished in black enamel, 8 and 12 inch tinned wheels, ½-inch rubber tires, for children from six to fifteen years of age $8 00

No. Each
3 Glascock Racer, same as No 1 built especially for girls, with the driving levers set wide apart to permit the girls to sit with their limbs and skirts between instead of astride the handles. $7 00

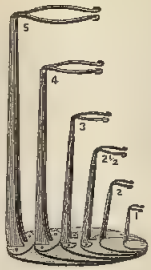
TOYS—Continued

BUREAUS

No. Per case
86624 Assortment of bureau and china closets, contains 12 pieces to retail for 25 cents, 8 pieces to retail for 50 cents, 4 pieces to retail for $1.00, oak finish . $16 00

No. Per doz.
76312 Size 3¾x7¾, 11¼ inches high, mirror 3x5 $4 50
76311 Same as No 76312 with shelf over top of mirror 4 50
76346 White enameled, 3 dood drawers, good swinging mirror . . . 9 00

BUTLER'S ADJUSTABLE DOLL STANDS



No. Per doz.
1628 Tin upright and base, diameter 2¾ inches, height unextended 2 inches, fully extended 3½ inches $1 20

1630 Same as No 1628, diameter of base 3 inches, height unextended 3¾ inches, fully extended 6½ inches. 2 46

1632 Heavy tin upright riveted to base, diameter 4½ inches, height unextended 7 inches, fully extended 13 inches . 4 80

1634 Same as No 1632, diameter of base 6 inches, height unextended 9 inches, fully extended 14 inches 7 20

1636 Bronze solid iron upright riveted to sheet-iron base, diameter 8 inches, height unextended 14 inches, fully extended 24 inches 18 20

CHRISTMAS TREES

No. Per doz.
86063 Artificial Christmas trees, limbs and branches are made of wire so they can be folded up, covered with green foliage, has candle holders on branches, and stands in wooden pot, height 21½ inches $4 00
86064 Same as No. 86063, but height 30 inches 8 00

No. Per doz.
86065 Artificial Christmas trees, limbs and branches are made of wire so they can be folded up, covered with green foliage has candle holder on branches, and stands in wooden pot, height 43 inches $16 00

ELECTRIC SPARKLERS

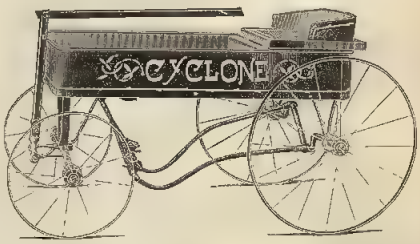
For indoor and outdoor illumination, especially good for Christmas tree decoration being smokeless and harmless, put up 1 dozen in a box, per dozen boxes $1 40

EXPRESS WAGONS

Each 3 in crate. Positively we can not break crates except at an additional charge of 20 per cent

"Toledo" all wrought steel gear wagons bodies beaded, top and bottom hand finish tinned wheels, "C" plate, steel tires

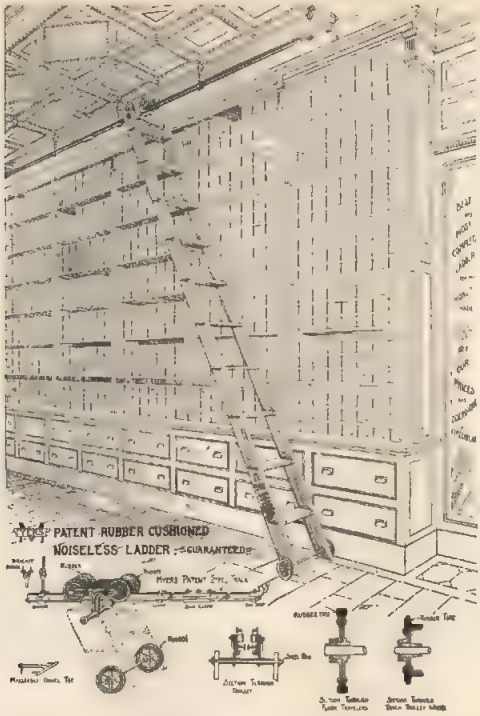
No.								Per doz
100	Size of body	9x18	inches,	6	and	9	inch wheels	$14 60
101	" "	10x20	"	7	"	10	" "	16 00
102	" "	11x22	"	8		14	"	18 00
103	" "	12x24	"	8	"	12	"	22 40
104	" "	13x26	"	10	"	14		25 50
105	" "	14x28	"	12	"	16	"	28 00
106	" "	15x30	"	14	"	18	"	30 70



No. Per doz.
141 Cyclone wagon, all wrought steel gear, wagon body is painted red striped in blue, seat and seat board folds down making a flush bottom, body 14x32½ inches, 12 and 18-inch steel-tired wheels $54 60

CUSHION TIRE STORE LADDERS.

MYERS'



	Each
Ladder and Trolley Complete	$16 00
Track Complete with Hangers... ..	Per Foot 30

For direct shipment from factory.

The Track is the well-known double angle steel rail, which is very neat and strong, and is suspended from ceiling by means of lag screws, either jointed or rigid or by flanged plates and wood screws. By this means the Track is placed close to the ceiling and can be leveled on an uneven ceiling without the least trouble and without any blocking or bridging, as is the case in many other Tracks.

The Ladder is constructed of the best, clear Georgia pine nicely finished, filled and varnished; has open panel sides, 5 inches wide, with 5-inch steps. Each step is supported at each end with our special malleable dowel tee, which makes the strongest construction possible. The width of the Ladder is 12 inches.

The Trolley is self-adjusting and made of malleable iron fitted with turned steel bearings and 3-inch anti-rattler wheels, turned and bored on lathe and fitted with special rubber tires.

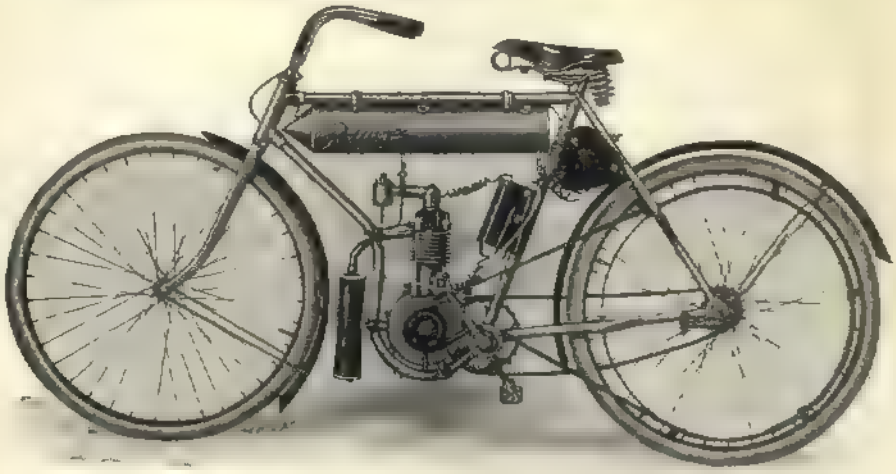
The Floor Travelers are 5 inches in diameter, composed of metal sides with **rubber cushion tires** clamped in such a position as to be impossible to get off or come loose. These wheels are placed on a steel axle which revolves with one of the wheels, the other running loose. In this manner the Ladder will adjust itself to the floor. With this style Trolley, **which is noiseless**, we overcome a great objection in other Ladders.

When the Ladder is not the proper length for ceiling, cut off at the bottom and replace the lower traveler shaft by boring new holes at the proper point so as to have the steps of the Ladder level.

DIRECTIONS FOR FITTING.

To find the required length of Store Ladder for any room subtract from the height of the room 11 inches (this being the amount of space required by Hangers, Track and Trolley), multiply the remainder by one and one-tenth; the result will be the length of the Ladder from hole at top to bottom of Ladder.

RELIANCE,—3 H. P.



GET ADVANCE CIRCULAR NO. 2

ADDRESS

RELIANCE MOTORCYCLE CO., Owego, N. Y.

It's the Machine—

the excellent qualities of which enable its riders to secure success in open competitions all over the world.

Mr. J. D. Hamilton, the well-known motor cyclist, who successfully competed in the British A.C.C. Trials with an N. S. U., writes:

"In the last competition I found it (the two-speed gear) invaluable, and it was only by letting in the second speed that I managed to negotiate the horses and dogs at the foot of Birdlip, and get to the top without dismounting. The machine and two-speed gear I used are the same as I took over the Juras and Alps into Italy, and this, coupled with the fact that I did not lose a single mark for reliability in the last severe trials, is sufficient indication of their excellence."

It's the Machine

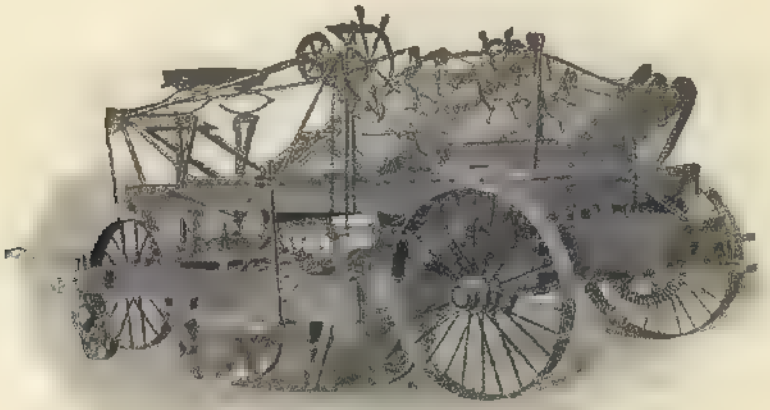
which gives such unqualified satisfaction to its owners by reason of the fact that it "never fails" at the severest test or on the tour.

We will send you full particulars with pleasure.

N. S. U. Motor Co.
206 W. 76th St., New York.

N. S. U.

NATIONAL ELEVATING GRADER, DITCHER AND WAGON LOADER



Capacity up to 1,000 Yards in Ten Hours and Loading 500 1½-Yard Wagons per Day

Important Features

Patented Direct Plow Draft: This arrangement does away with the side draft which has heretofore been such a drawback to elevating graders, not only does machine pull lighter but the driver can keep a straight furrow without difficulty. A compression spring is used to minimize the strain when starting a heavy load.

Plow Adjustments The patent plow tilting device is easy to operate, but self-locking and it can be worked without the operator leaving his place on the platform or stopping the machine

The Elevator is composed of steel channels, and is in two or three sections according to its length The construction is extremely rigid and the frame is braced in such a manner that it is impossible for it to sag or buckle when under extreme load.

Wheels The regular steel wheels are made with solid hubs and staggered oval steel spokes, each one of which is riveted to the tire and is made with a shoulder to prevent punching through Special wide cleats are furnished which can be attached over the tires whenever the character of the work requires it

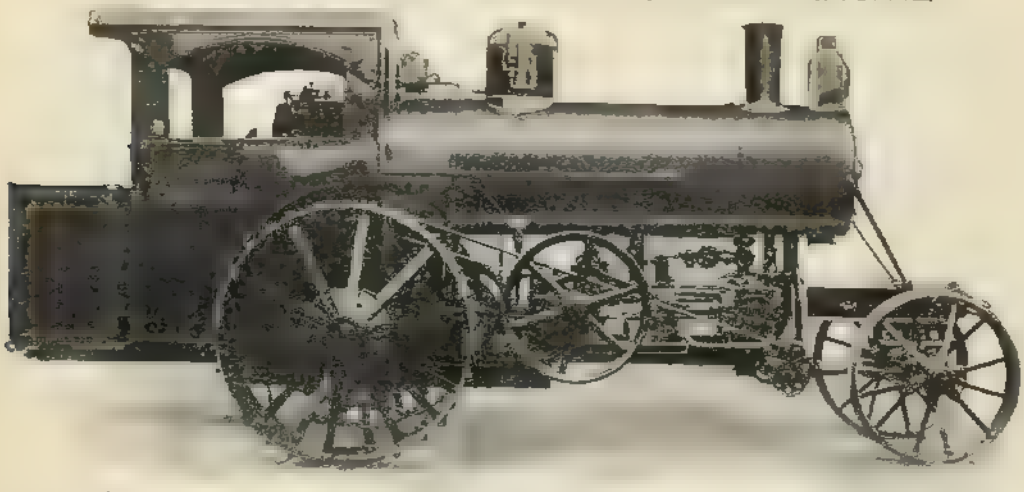
Operating Power: As a general rule, the machine is drawn by 12 horses (eight in front and four hitched to a push cart behind), or by a traction engine

When operating with teams, two drivers are required in addition to an operator In the case of traction engine power, the engineer only is required in addition to the operator

Prices When asking for further information or prices be sure to mention general conditions and character of material to be handled.

Price $1,500.00

"CONTRACTORS' SPECIAL" TRACTION ENGINE



The construction of this engine is such that it possesses many features of peculiar advantage for Traction Work of all kinds, including Grading, Excavating, Lumber Dirt and Ore Hauling, etc.

It has these great advantages

1 Increased Durability. The engines and gearing, being mounted on an Independent Steel Frame Work, no Loose Brackets or Leaky Bolts are possible. The boiler is also entirely free from the strains which, in the case of ordinary top mounted engines, seriously impair the life of the boiler.

2 More Power. The double cylinders develop enormous power and this power is transmitted through the gearing and pulls on the load in a straight line and not down from the top of the boiler at an angle of from 45 to 90 degrees, as with top-mounted engines.

3 Greater Ease of Handling. This engine is guided by means of a screw shaft guide which is much easier to handle and more positive than the ordinary chain guide.

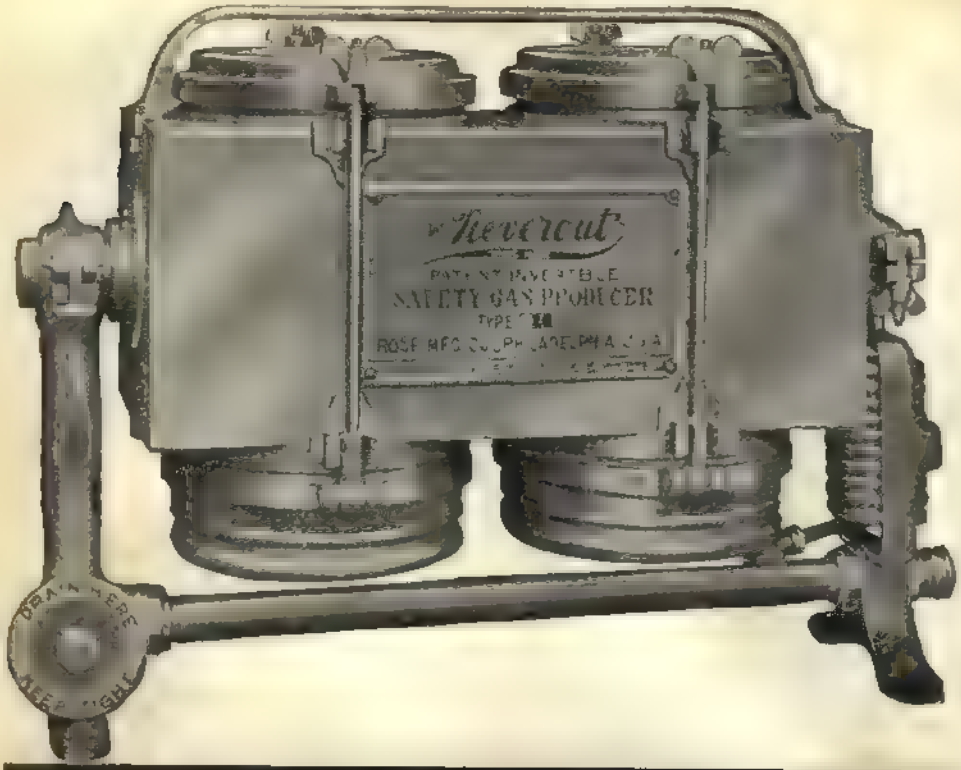
4. Easily Cleaned and Oiled. The engine and cylinder parts are low down and the operator can oil them or make any necessary adjustments while standing on the ground.

Equipped regularly with Double Speed Gear, Steel Master Gears and Steel Pinions, Rocker Grates, Shelby Seamless Tubes, Oil Pump, Eclipse Governor, Heater, Injector, Independent Pump, Ejector, Headlight, Seat, Gravity Gear Oiler, Locomotive Cab, and Jacketed Boiler.

Specifications and Dimensions

Indicated Brake Horse Power	75
Diameter of Boiler	36 in
Number of Tubes	66
Diameter of Tubes	2 in
Length of Tubes	84 in
Length of Firebox	43 25 in
Width of Firebox	31 in.
Height of Firebox	39 5 in.
Grate Surface	3 sq ft
Heating Surface	281 95 sq ft
Size of Cylinders	7x10 in
Diameter of Crank Shaft	3½ in
Diameter of Rear Axle—4½ in reinforced to 7 in. by a cast iron mold Face of Gearing-Bull Gears and Bull Pinions 6 in., other gears	5 in
Diameter of Flywheel	41 25 in
Face of Flywheel	12 in
Revolutions per minute	240
Steam Pressure per sq in	140 lbs.
Diameter Rear Wheels	67 in.
Face of Rear Wheels	26 in
Diameter of Front Wheels	46 in.
Face of Front Wheels	12 in.
Capacity of Tank underneath Engine	130 gal.
Capacity of Coal Bunker on Engine	320 lbs.
Water Capacity of Platform Tank	225 gal.
Coal Capacity of Platform Tank	1775 lbs.
Extreme Length of Engine	22 ft.
Extreme Width of Engine	9 ft 10 in
List Price	$4250.00

They all want the best
The Neverout



THIS IS THE 1909 MODEL OF THE FAMOUS

Neverout

REGISTERED TRADE MARK

Patented Invertible System of Gas Generation

for lighting automobiles and motor boats. It stands absolutely in a class by itself and has overcome the trouble with common, so-called generators. Lights instantly and can be repeatedly relighted after standing for long periods of time, as the carbide is separated from the moist ashes by the invertible method.

¶ This system is the only correct system and is now being used by the United States Government on the Isthmian Canal, as well as the most expert and most careful automobilists throughout this country and Europe.

¶ *Write to-day for description* which will free you from troubles with the ordinary acetylene generator and the old-fashioned gas tank.

ROSE MANUFACTURING CO.

911 Arch Street, :: :: Philadelphia, U. S. A.

POST CARDS

Of Your Factory

POST CARDS

Of Your Cars

POST CARDS

Of Anything You Make

Printed by the Chilton Daylight Color Process. They make most excellent pieces of printed advertising matter.

Send for Samples and Prices

Chilton Printing Company
MARKET & 49th STREETS, PHILADELPHIA

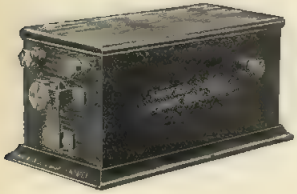
SPARK PLUGS.

NEVER-MISS.

Self-cleaning from the fact that the large amount of air space allows the heat of cylinders to consume refuse. Point to point contact. Electrode and cup shaped, cup made of solid steel. The tapered porcelain rests in the cup shaped cap on a vulcabestos washer. $\frac{1}{64}$ inch allowed for expansion. Steel spring washer at top of porcelain takes away all strain and jar of engine. Imported porcelain used on all plugs. Any thread. With Porcelain, Mica and Lava insulations Any part interchangeable.

Never-Miss, Spark Plug, - - - - Each, $1 50

SPARK COILS.



NEVER-MISS.

Has high-grade insulation and water-proof features, has a radical improvement in the vibrator, especially for high speed work. This adjustment is also made by a large thumb screw without the use of a screw driver. The vibrator parts may be removed easily for smoothing up the point or renewal of points. It may be adjusted for a very light amperage of current, or will give an unusually hot spark when adjusted for heavy amperage, especially adapted for two-cycle engines of all discriptions.

Never-Miss, Spark Coil, - - Each. $10 00

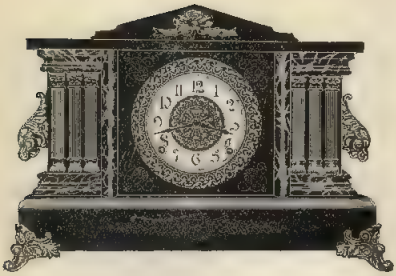
BATTERY CONNECTIONS

NEVER-MISS BATTERY CONNECTIONS AND WIRE TERMIMALS.

Terminals, in one piece, from heavy gauge copper and corrugation, makes a spring that holds the connections from working loose with the vibration of engine. The connections are firmly clamped on heavy insulation wire, underwriter's code and thoroughly soldered by hand, thus insuring a perfect contact.

Never-Miss Battery Connections, - - - - - Per dozen, $0 60

MANTEL CLOCKS.



No. **S 1090**, Height 12¼ inches, Length of Base 17¼ inches, Marbleized Mouldings, Onyx Columns, Eight-day, Hour Cathedral Gong, Half-hour Cup Bell, Patent Regulator, Fancy Dial. Each, $10 00

No. **S 1091**, Height 12¼ inches, Length of Base 17½ inches, Marbleized Mouldings, Metal Columns, Eight-day, Hour Cathedral Gong, Half-hour Cup Bell, Patent Regulator, Fancy Dial, Each, $10 00

No. **S 1057**, Height 11 inches, Length of Base 17 inches, Marbeleized Mouldings, Onyx Columns, Eight-day, Hour Cathedral Gong, Half-hour Cup Bell, Patent Regulator, White or Fancy Dial, - Each, $8 50

CANFIELD.

Enameled Wood.

Finished in Black or Malachite, with Gilt Trimming. Height 10½ inches, Width 13¼ inches, Eight-Day, Half-Hour Strike, Cathedral Gong, 6-inch Fancy Dial.

Each, - $7 35

OTTOWA.

Enameled Wood.

Finished in Black, Gilt Trimmings, Height 11¾ inches, Width 16¾ inches, Eight-day, Half-hour Strike, Cathedral Gong, 6-inch Fancy Dial.

Each, - $9 05

MILAN.

Enameled Iron.

Height 11 inches, Width 11 inches, Dial 6 inches, Finished in Black or Malachite, with Gilt Trimmings, Eight-day, Half hour Strike, Cathedral Gong, White or Ivorine Dial.

Each, - $10 50

MORLEY-MURPHY HARDWARE COMPANY, GREEN BAY, WIS.

MORLEY-MURPHY HARDWARE COMPANY, GREEN BAY, WIS.

CLOCKS.

F. W. ALARM.

The "F. W." is undoubtedly the most practical alarm ever devised. Its heavy Cast Iron Case, finished in Bronze and ornamented in relief, has an attractive appearance, which makes it suitable for any room. On account of its weight it is almost impossible to upset; the alarm placed underneath and out of sight, rings long and extremely loud, but can be stopped whenever desired by a Brass Shut-off attached to the Bell.

Height 5 inches. Weight 2¼ pounds. Dial 2¾ inches.

Each, - - - - - - $1 75

REGULATORS.

BRANTFORD.

12 inches, Oak.

Height 27¼ Inches, Dial 12 Inches.

Eight-day Time	-	Each,	$6 55
" Strike,		"	7 55
" Time, Calendar,		"	7 05
" Strike, "	"	"	8 05

THE BANK REGULATOR.

Oak.

Height 33 Inches, Dial 12 Inches.

Eight-day Time,	-	Each,	$7 55
" Strike,		"	8 55
" Time, Calendar,		"	8 05
" Gong,	"	"	9 05

TAMPA.

Oak.

Height 38 Inches, Width 15½ Inches, Dial 12 Inches.

Eight-day Time,	-	Each,	$8 30
" Strike,		"	9 30
" Time, Calendar,		"	8 80
" Strike, "	"	"	9 80

WOOD LEVER.

Polished Veneered.

Eight-day,	6 inch,	Time,	Each,	$5 45
"	8 "	"	"	6 00
"	8 "	Strike,	"	8 00
"	10 "	Time,	"	6 80
"	10 "	Strike,	"	8 80
"	12 "	Time,	"	7 55
"	12 "	Strike,	"	9 55

Wood Lever.

CANTON.

Nickel or Brass.

Eight day,	6 inch,	Time,	Each,	$5 45
"	8 "	"	"	6 00
"	8 "	Strike,	"	8 00

Canton.

NEW HAVEN CLOCK CO.'S MISSION CLOCKS

Prices Each.

TINAS—$2.90

Height 12 inches, width 4¼ inches, dial 3 inches. Solid oak case, Flemish finish. One-day time, pendulum movement, with brass hands and numerals.

ALVA—$3.65

Height 13 inches, width 6¼ inches, dial 4 inches. Solid oak case, Flemish finish, wood dial with white Arabic figures painted on a dark blue background. Brass hands, one-day time, pendulum movement.

PALOS—$4.10

Height 13½ inches, width 5¼ inches, dial 4 inches. Solid oak case, Flemish finish, wood dial with white Arabic figures painted on a dark blue background. Brass hands, one-day time, pendulum movement.

PASCO—$3.95

Height 13 inches, width 5¼ inches, dial 3 inches. Solid oak case, Flemish finish. Wood dial with white Arabic figures painted on a dark blue back ground. Brass hands, one-day time, lever movement.

MINHO—$2.90

Height 12 inches, width 4¼ inches, dial 3 inches. Solid oak case, Flemish finish. One-day time, pendulum movement, with brass hands and numerals.

LOS SANTOS—$5.80

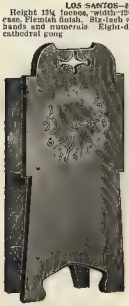
Height 13¾ inches, width 12¾ inches. Solid oak case, Flemish finish. Six-inch wood dial with brass hands and numerals. Eight-day, half-hour strike, cathedral gong.

LOS ALAMOS—$5.80

Height 14½ inches, width 11¾ inches. Solid oak case, Flemish finish. Six-inch wood dial with brass hands and numerals. Eight-day, half-hour strike, cathedral gong.

LOS BARRIOS—$5.80

Height 13½ inches, width 11¼ inches. Solid oak case, Flemish finish. Six-inch wood dial with brass hands and numerals. Eight-day, half hour strike, cathedral gong.



SAN JUAN—$5.80

Mantel Weathered Oak Mission Clock. Wooden dial with white figures on a background of dark brown. Fancy brass bands. Eight-day, half-hour strike, cathedral gong. Height 20½ in., width 8½ in., dial 6 in.

LISO—$3.20

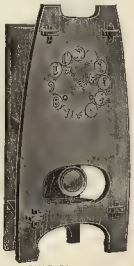
Height 8½ inches, width 4¼ inches, dial 2 inches. Solid oak case, Flemish finish. Wood dial with white figures painted on a dark blue background. One-day time, lever movement.

SAN CARLOS—$5.80

Mantel Weathered Oak Mission Clock. Wooden dial with white figures on a background of dark brown. Fancy brass bands. Eight-day time, half-hour strike, cathedral gong. Height 20 inches, width 9 inches, dial 6 inches.

LOTA—$3.20

Height 8½ inches, width 4 inches, dial 2 inches. Solid oak case, Flemish finish. Wood dial with white figures painted on a dark blue background. One-day time, lever movement.



SAN PABLO—$5.80

Mantel Weathered Oak Mission Clock. Wooden dial with white figures on a background of dark brown. Fancy brass bands. Eight-day, half hour strike, cathedral gong. Height 20 in., width 11 in., dial 6 in.

New Haven Clock Co.'s Store and Office Clocks

PRICES EACH.

TAMPA

Oak, height, 38 inches, width, 15½ inches, dial, 10 inches.

Eight-day time	$7 40
Eight-day strike	8 40
Eight-day time calendar	7 95
Eight-day strike calendar	8 85

THE BANK REGULATOR

Oak, height 53 inches, dial, 12 inches.

Eight-day time	$7 25
Eight-day, strike, gong	8 75
Eight-day time calendar	7 70
Eight-day gong chime	9 20

TAMPA SPECIAL

Oak, height, 43 inches, width, 15½ inches, dial 12 inches

Eight-day time	$ 8 70

10-INCH DROP OCTAGON

Height 21 inches, dial 10 inches, polished veneered rosewood or solid oak

Eight-day time	$5 00
Eight-day strike	6 00
Eight-day time calendar	6 35
Eight-day strike, calendar	7 35

12-INCH DROP OCTAGON

Height 24 inches, dial 12 inches, polished veneered rosewood, zebra or solid oak

Eight-day time	$6 55
Eight-day strike	7 55
Eight-day time calendar	7 00
Eight-day strike calendar	8 00

10-INCH BRANFORD

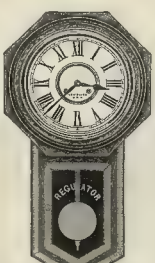
Oak, height, 24½ inches, dial, 10 inches

Eight-day time	$6 10
Eight-day, strike	7 10
Eight-day time calendar	7 55
Eight-day, strike, calendar	7 65

12-INCH BRANFORD

Oak, height 27½ inches, dial, 12 inches

Eight-day time	$6 40
Eight-day, strike	7 40
Eight-day time, calendar	8 85
Eight-day, strike, calendar	7 85



HARVARD REGULATOR

Height, 39½ inches, width, 17½ inches, dial 12 inches oak or walnut

Eight-day time	$10 20
Eight-day, strike, gong	11 70
Eight-day time, calendar	10 65
Eight-day, gong, calendar	12 15

New York Standard Chronographs and Horse Timers

A new Chronograph Watch that carries with it an individuality in the way of quality and accuracy of performance, lower in price than any other. Fully guaranteed. All parts of this watch are interchangeable and can be procured without delay at a small cost. See general description of movements below.

PRICES EACH.

SILVERODE CASE.

Screw back and jointed bezel, plain polish or engine turned.

No 9629	7 Jewels	$10.30
No 9631	10 Jewels	12.30

STERLING SILVER CASE.

Plain polish or engine turned.

No 9632	7 Jewels	$13.40
No. 9633	10 Jewels	15.90

DESCRIPTION OF N. Y. STANDARD CHRONOGRAPH MOVEMENTS

Seven Jewels, Open Face, ¾ plate, lever set, stem wind, train bearings in metal settings, quick train, nickel damaskeened or gilt, one-fifth second, start, stop and fly back, operated from the crown.

Ten Jewels, Open Face ¾ plate, lever set stem wind, train bearings in metal settings, quick train, nickel damaskeened or gilt, one-fifth second, start, stop and fly back, operated from the crown, cut expansion balance, Breguet hair-spring. Fully guaranteed

VICTORY GOLD FILLED CASE.

Guaranteed for 10 years.

Screw back and jointed bezel, engine turned.

No 9634	7 Jewels	$14.50
No. 9635	10 Jewels	16.50

ENGRAVED.

No 9636	7 Jewels	$14.50
No. 9637	10 Jewels	16.50

CROWN GOLD FILLED CASE.

Guaranteed for 20 years

Screw back and jointed bezel, horse and jockey designs.

No 9638	7 Jewels	$17.30
No. 9639	10 Jewels	19.30

Horse and sulky designs.

No. 9640	7 Jewels	17.30
No. 9641	10 Jewels	19.30

Horse head design.

No. 9642	7 Jewels	17.30
No. 9643	10 Jewels	19.30

CROWN GOLD FILLED CASE.

Guaranteed for 20 years

Screw back and jointed bezel, plain polished.

No 9644	7 Jewels	$17.30
No. 9645	10 Jewels	19.30

Engine turned.

No. 9646	7 Jewels	17.30
No. 9647	10 Jewels	19.30

JAS. BOSS GOLD FILLED CASE.

Guaranteed for 25 years

Screw back and jointed bezel, independent push pin

Subject designs or T. & B. engravings.

No. 9648	7 Jewels	$21.00
No. 9649	10 Jewels	23.00

Engine turned or plain cases $1.00 less.

JAS. BOSS GOLD FILLED CASE.

Guaranteed for 25 years.

Subject designs or T. & B. engravings.

No. 9650	7 Jewels	$26.50
No 9651	10 Jewels	28.50

Engine turned or plain cases $1.50 less.

Gents' Fine Swiss Split and Sweep Second Chronographs and Horse Timers

ILLUSTRATIONS SHOW EXACT SIZE. PRICES EACH.

Guinand's Reliable Fifth-Second Split Chronographs with 30 Minute Register.

Open Face, 16 size (18 ligne), finely finished nickel lever movement, with Breguet hairspring.

No. 9652. 14k solid gold, very accurate, plain bassine, heavy case, 17 jeweled adjusted lever movement patent regulator, ruby jewels in raised settings $210.00

No. 9653 14k solid gold, plain bassine case, 15 jeweled, C. L. Guinand lever movement 150.00

No. 9654 25 year gold filled case, 13 jeweled Guinand lever movement. 98.00

No. 9655 Silver, plain bassine case, 13 jeweled Guinand lever movement 81.80

No. 9656 Gun metal, bassine case, 13 jeweled Guinand lever movement. 77.00

All the above are thoroughly reliable.

National Park Chronographs with 30 Minute Register. Beats 1-5 Second, Start, Stop and Fly Back from Crown.

No. 9657 Nickel case, fine nickel lever movement, 11 jewels.. . . . $25.70

No. 9658 Nickel case fine nickel lever movement, 15 jewels..... .. 30.00

No. 9659 Oxidized steel case, nickel lever movement, 11 jewels . 26.80

No. 9660 Silver case and cap, nickel lever movement, 11 jewels .. 31.50

No. 9661 Gold filled case, antique bow, 25 year guarantee, plain or engine turned fine nickel lever movement, 15 jewels 51.30

Huguenin's Reliable Minute Repeater and Chronograph with Minute Register.

Open Face (19 ligne), fine 15 jewel, nickel lever movement Breguet hairspring, exposed ruby pallets starts, stops and fly back from crown, strikes hours, quarters and minutes. A reliable new watch in a low priced case.

No. 9662 Gun metal case $75.00

Same grade Minute Repeating Watch without chronograph attachment

No. 9663 Gun metal case.....$56.50

Horse-Timer with 30 Minute Register, Fifth-Second, Start, Stop and Fly Back from Crown

Jewel cylinder movement, new thin model, accurate and reliable in action.

No. 9675 Nameless movement, nickel case .....$ 8.50

No. 9676 National Park or Trotter, nickel case 9.40

No. 9677 Trotter (gun metal) case . . 10.00

No. 9678 Nameless movement, gun metal case 9.10

C. L. Guinand's Reliable Split Fifth-Second Horse Timers with 30 Minute Register.

High grade nickel jeweled non-magnetic lever movement, compensation balance, small 16 size new thin model full bassine case, running of movement does not stop in operating hands, thoroughly reliable.

No. 9664 In nickel case.....$31.50

No. 9665 In black oxidized steel case . 32.70

No. 9666 In solid silver case 38.50

No. 9667 In 10k gold filled 20 years warranted case 52.50

Jockey Club Split Second Horse Timer. Fifth-Second with 30 Minute Register.

Small 16 size, Open Face, nickel case, round bow with fine grade nickel lever, jeweled, non-magnetic movement.

No. 9668 In nickel case.....$30.00

No. 9669 In gun metal case..... 30.00

National Park Chronographs, Fifth-Second, Start, Stop and Fly Back, from Crown.

No. 9670 Nickel case, fine lever movement, 11 jewels.....$21.00

No. 9671 Oxidized steel case, nickel lever movement, 11 jewels . 22.20

No. 9672 Solid silver case and cap, fine nickel lever movement, 11 jewels 25.70

No. 9673 Gold filled case, 25 year guarantee, plain or engine turned, antique bow, nickel lever movement, 7 jewels 38.50

No. 9674 Gold filled case, 25 year guarantee, plain or engine turned, antique bow, nickel, 15 jewel lever movement 41.50

National Park Horse Timers with 30 Minute Register and Fifth-Second Jeweled Lever Movement

Thin model. Best in the market.

No. 9679 With nickel case. . $11.10

No. 9680 With gun metal case .. 11.70

No. 9681 Nameless movement in nickel case 10.50

TRADE MARKS:
"LACLEDE"
AND
"20TH CENTURY,"
REGISTERED.

WASH BENCHES.

LACLEDE*.

Select Varnished Hardwood Folding Bench, Bolted and Braced. Two Tub Rests On Each Side, and Revers[illegible] Water Table. Tinned Malleable Iron Hinges, Hooks and Brackets. Height over all 3 feet 2½ inches. Length Extended 7 feet 3 inches. Height to Top of Tub Rest, 1 foot 7 inches. Base Pieces 12 inches Long, Uprights 1x1⅜ inches, Round Cross Braces, ⅞ inch Diameter.

Per Dozen

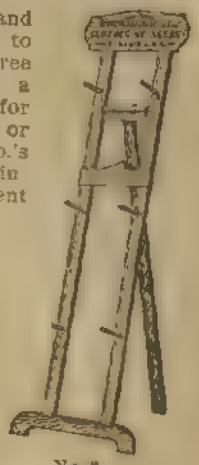
No. 1B—LACLEDE*; Folding; Suitable for 10, 11 or 12 inch Wringers. Weight per dozen about 288 lbs. $26 00

One-fourth Dozen in a Crate.

WRINGER DISPLAY STANDS.

No. C.

One No. 3 Stand Only, furnished to Each Customer (free of charge) with a Single Order for One-half Dozen or more of S. H. Co.'s Special Brand Wringers, for shipment from stock.



No. 3.

20TH CENTURY*. Each

No. C—20TH CENTURY*; Flemish Oak Finish, Hardwood with Casters. Suitable for Six Wringers. Three on Each Side. Hooks on which Wringers are Hung are Tinned. Height, 6 feet, Width 18½ inches. $5 00

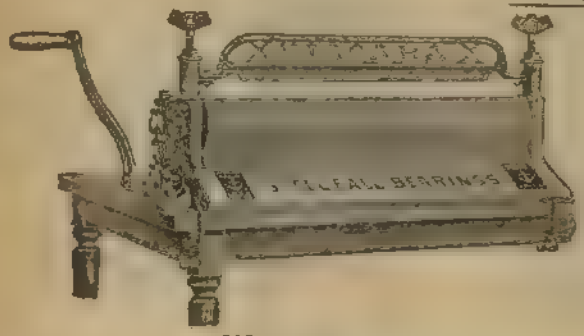
Weight Each about 44 lbs.; One in a Crate.

S. H. Co.'s.* Each

No. 3—S. H. Co.'s.*; Hardwood, Varnished; Suitable for Three Wringers. Height, 4 feet 9 inches; Width 21 inches. . . . $1.20

Weight Each about 8 lbs., Twelve in a Crate.

MANGLES.



NIAGARA.

No. N—NIAGARA; BALL BEARING; Painted Green, Malleable Iron Frame, 14 inches High, Galvanized Malleable Iron Crank 12½ inches Long, Two Galvanized Malleable Iron Table Clamps open 1¾ inch, Wing Relief Screws at Each End, Two Thoroughly Seasoned Hardwood Rolls 3½ inches in Diameter, 24 inches Long, with Gear Wheels on One End Only, Varnished Hardwood Apron 9/16 inch Thick, 3½ inches Wide 25½ inches Long with Galvanized Malleable Iron Caps on Each End. Height over all 16½ inches. Length over all 29¼ inches, Weight each about 36 lbs. . $9.35

Six in a Wood Box.

‡GARLAND.

Each

‡No 70—GARLAND Painted Green and Striped; Cast Iron Stand, Mounted on Iron Casters. Cast Iron Crank Wheel 1¼ inch Face; 16 inches in Diameter, Easy Turning Purchase Gear Arrangement and Gearing, Covered with Cast Iron Shield, Tinned Malleable Iron Braced Frame 46 inches High, Two ⅜ inch Tinned Steel Spiral Pressure Springs, Two Galvanized Iron Wheel Relief Screws, Two Thoroughly Seasoned Maplewood Rolls 5¼ inches in Diameter, 24 inches Long, Varnished Hardwood Table 11 inches Wide, 28 inches Long, Stand, Width on Floor 21 inches, Length on Floor 29 inches. Weight each about 250 lbs. $36 00

One in a Crate.

‡Goods marked thus (‡) are not carried in stock and can be furnished only by shipment direct from factory.

TRADE MARKS: "RUN EASY" AND "ECONOMY," REGISTERED.

CLOTHES WRINGERS.

LOVELL'S GUARANTEE.

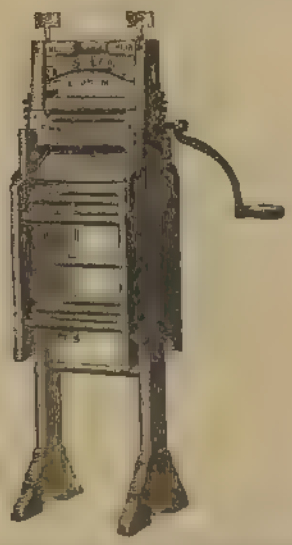
Select Varnished Hardwood Bolted Frame and Hinged Apron, with Galvanized Patent "Hold-Fast" Swinging Tub Clamps, and Crank 11 inches Long, Rolls have ⅝ inch Steel Shaft, with Double Cog Wheels at Each End Two Sliding Hardwood Guides, Relief Screws at Each Side; Clamps open 1½ inches; PLAIN BEARING Fitted with Lovell's Solid White Rubber Rolls; Flat Steel Pressure Spring; Two Sliding Hardwood Guides; Rolls Warranted Five Years.

Per Dozen

No. 110—ROLLS 1¾x1¾ INCHES; Frame 13½ inches High, 12¼ inches Long. Weight per dozen about 260 lbs. $65.00

One-quarter or One-half Dozen in a Case.

BENCH WRINGERS.



Select Varnished Hardwood Folding Bench Bolted and Braced with Wringer on Center Upright; Two Tub Rests, One on Each Side, and Reversible Water Table, Tinned Malleable Iron Hinges Hooks and Brackets; Height over all 3 feet 3 inches; Length Extended, 7 feet 3 inches; Height to Top of Tub Rest, 1 foot 7 inches; Base Pieces, 12 inches Long Uprights, 3x1⅛ inches; Round Cross Braces, ⅞ inch Diameter.

Per Dozen

No. FPB10 ECONOMY*; PLAIN BEARING; With No. E10 Wringer, Width, 12¼ inches. Weight per dozen about 550 lbs. $71.00

Per Dozen

No. RBB10—RUN EASY*; BALL BEARING With No. RBX10 Wringer, Width 14½ inches Weight per dozen about 555 lbs. $90.00

One-twelfth Dozen in a Crate.

NORTHERN

MOTOR CAR CO., DETROIT

Member Association of Licensed Automobile Manufacturers.

"Silent as the stars"

The Practical Family Car

Perfected by five years' experience manufacturing this one model.

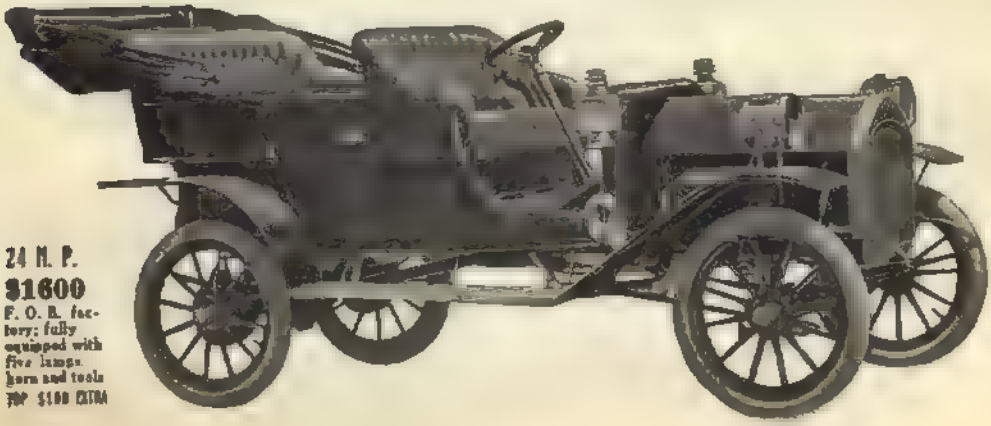
Built to carry the family—strong, enduring, reliable—and supremely easy riding, because of its four full elliptic springs and perfectly balanced engine.

Has the simplest control and mechanism of any automobile, and will give you all the real enjoyment of motoring and long-continued, satisfactory service—with the assurance of little expense in maintenance. You can drive and care for it yourself. In a word, it's the practical family car.

It's a pleasure and not a crucifying luxury to own a Northern.

Let us send you catalog giving full details.

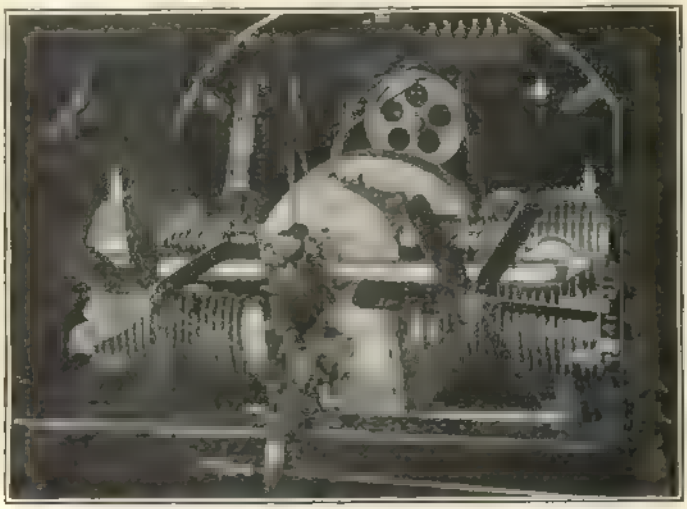
DEALERS: WRITE FOR OUR PROPOSITION AT ONCE.



24 H. P.
$1600
F. O. B. factory; fully equipped with five lamps, horn and tools
TOP $100 EXTRA

The Albany Air-Cooled Motor

In addition to the manufacture of complete cars of the runabout and surrey type, the Albany Automobile Co., of Albany, Ind., are furnishing their air-cooled automobile motor to the trade generally. This motor is of the 2-cylinder, horizontal, opposed type, and develops 18 to 20 H. P., operating on the 4-cycle principle. The cylinders are of 5-inch bore and 4½-inch stroke. Cooling is assisted by two friction-driven fans. Bearings are of bronze. The crank shaft is 1⅝ in. at the crank end and 1¾ in. at the fly-wheel end. The crank pins are 1⅝ in., all made of drop forged open hearth steel. Both sets of valves are mechanically operated and both are placed on the upper side of the cylinders, and air circulation is allowed between the valve cages and the cylinders. The exhaust valves are 2 in. in diameter and open 7-16 of an inch, which allows the complete expulsion of the exhaust gases. The gears and cams are enclosed in a dust-proof crank case. The pistons have three compression rings and are fitted with large hollow piston pins. The cylinders are ground to a smooth bearing surface. The cooling surface provided by the flanges totals 2200 square inches, while the surface exposed to the heat totals only 220 square inches, and the makers claim that the motor will cool sufficiently even without the fans. The cams and valve push rods are of tool steel, tempered. Oiling is by means of a six-feed mechanical oiler. Copper-covered asbestos gaskets are used in all joints



The Albany 4-cycle, 18-20 H P Air Cooled Car Motor

The New Haven Machine & Screw Co., Mill Street and Satonstall Avenue, New Haven, Conn., is manufacturing all kinds of screw machine products from brass, steel and iron, from stock of high tensile strength if desired.

Hayden Automobile Parts

The N. L. Hayden Mfg. Co., 172-182 W. Locust St., Columbus, Ohio, has for some time past been making a specialty of the manufacture of front and rear axles, motors, clutches, wheel hubs, flanges, housings, brackets of all kinds, etc., all of this work being done to customers' specifications. Its factory equipment includes two Schumaker and Boye engine lathes, one Fay and Scott turret lathe, one American Fox turret lathe, one 21-inch Gisholt turret lathe, six Lidge and Shipley high-speed patent head lathes, which can be used as turret lathes or as engine lathes, the turrets being interchangeable with compound rests, all fitted with tail stocks and taper attachments. They also have two 34-inch Colbourn vertical boring mills, four drill presses, and a Kempsmith universal milling machine; also large tool grinders, universal grinders, buffing lathes and grinding wheels for finishing work. Their tools are all of the latest patterns and they contemplate increasing their facilities as the automobile business increases its demands for their product

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The Auto Tire and Tube Co., 1657 Broadway New York City, have recently brought out an inner tube which they claim will prevent blowouts, punctures, etc. It is also said to be strong enough to carry the car without a casing. It is made in all sizes.

The Monash-Yoonker Co., 203 Canal Street, Chicago, Ill., has made arrangements with F. S. Fluke, inventor of the "F-F" lock nut, to manufacture and sell the device on a royalty basis. Mr. Fluke will be associated with the company. The "F-F" lock nut was described in the May, 1907, Journal, page 152, and has since been adopted by a number of motor car builders.

DOLLS—Continued

We do not break packages

NOVELTY DOLLS

No. 1120 — Per doz.
1120 Negro crying dolls, when made to speak mouth opens, assorted boys and girls, all in comical costumes, height 12½ inches, ½ dozen in flat box $4 00

No. — Per doz.
1122 Crying dolls, representing Happy Hooligan, Foxy Grandpa, Mamma Katzenjammer, Katzenjammer Boy, Buster Brown, and Policeman, with moving jaw and voice, height 12 inches, ½ dozen, assorted in box $4 00

No. — Per doz.
1124 Character dolls, assorted six styles representing Nansen, Rough Rider, Eskimo, Carnival, Dick and Squeak, all in regulation costumes, jointed body, bisque turning head, open mouth showing teeth, glass eyes, height 9 inches, ½ dozen in box $4 00

No. 1128

No. 1132

No. 1150

No. — Per doz.
1128 Reversible negro doll with kinky hair and glass eyes on one side and white baby with glass eyes and bangs on the other, patent heads, calico and bandanna slips, height 12½ inches, ½ dozen in box $4 00
1132 Eskimo doll, full fur suit with ears, jointed body, bisque turning head, glass eyes, woolly bangs, painted shoes, height 8½ inches, ½ dozen in box 4 00
1150 Rag doll, with painted features and our colored dresses, sawdust filled, soft body, red stockings, height 14 inches, ½ dozen 4 08

No. 1162 No. 1164 Nos. 1165 and 1170 No. 1168 No. 1166

RAG DOLL, CELLULOID FACE

No. — Per doz.
1162 Worsted doll with celluloid mask, painted features, assorted three styles, one with full worsted dress and hat, one with worsted skirt and flannel jacket with white waist, trimming of worsted, and one with calico skirt, white flannel waist, with experiment hat trimmed with color, good height 19 inches $4 00
1164 Rag doll with celluloid mask, painted eyes and hair, and stocking bodies with black imitation stockings, assorted two style dresses, one dress with large collar and band, one decorated with large crown, felt with crown, shoe caps to match, height 12 inches, each in box 8 00
1165 Assorted boys and girls in rag, velvet costumes with colored trimming and collar, solid imitation stockings, height 11 inches, each in box 8 00
1170 Celluloid head, dressed doll, with painted features and hair, mercerized skirt, white flannel cloak and cape trimmed with scalloped edges and stitching, knitted hat, regular style shoes and stockings, height 9½ inches, each in box with lace paper and tie 8 00
1168 Extra stout worsted doll with voice, celluloid head, painted features and hair, dressed in white worsted baby gown and hat trimmed with white lace, cloak, lace trimmed, underwear, white stockings with white felt imitation shoes tied with white baby ribbon bows, height 11 inches, each in box 9 00
1166 Tootsy rag doll with celluloid mask, painted features and hair, soft stuffing body, gingham suspender dress with white blouse and sleeves, with lace, colored stockings and colored kid shoes, good underwear, height 14½ inches, each in box 16 00

HAPPYLAND DOLLS.

Natural Faces. Cloth Bodies, Faces Photographed from Life.

Nos. 1201 and 1203 No. 1205 Nos. 1207 and 1209 Nos. 1211 and 1213 Nos. 1215 and 1217

No. — Per doz.
1130 Dutch boy and girl in regulation Holland costumes, cloth, painted wooden shoes and painted stockings, jointed bodies, bisque turning heads with open mouth showing teeth, glass eyes, height 8 inches, ½ dozen in box $4 00

No. — Per doz.
1201 Girl, assorted pink and blue figured lawn dresses, bishop pattern, neat bonnet, height 12½ inches $4 00
1203 Girl, assorted pink and blue Marguerite lawn dresses, yoke style, lace trimmed, kid shoes, fancy bonnet, height 14 inches 8 00
1205 Baby, long white silk dress, lace trimmed, fancy cap, height 14 inches 9 00
1207 Girl, French revers dress, nurse apron, with pink and blue coats, lace trimmed, fancy bonnet, height 18 inches 12 80
1209 Girl in checked Antrim lawn dress, lacy fancy, lace trimmed, fancy bonnet, height 17 inches $18 00
1211 Girl, beautiful dress, gathers, tucks, ruffles, embroidered muslin and lawn, in pink shades, lace trimmed, very fancy bonnet, height 17 inches 24 00
1213 Girl in blue lawn French dress, French style, lacy, lace trimmed fancy bonnet, height 21 inches 30 00
1215 Girl, in pink lawn dress, ruffles, tucks, lace trimmed, lace trimmed sun bonnet, height 21 inches 42 00
1217 "Hiawatha" in figure, Indian slip dress and moccasins, height 35 inches 72 00

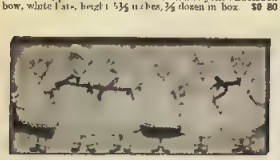
DOLLS—Continued
ASSORTMENTS

Jointed dressed dolls, bisque turning heads, painted features, short curly hair. We do not break packages

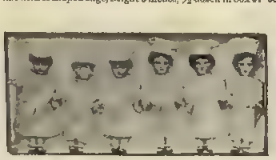
No. 1288 Red, pink and blue dresses with lace yoke and ribbon bow, white hats, height 15½ inches, ½ dozen in box Per doz. $9 60

No. 1288 Red, pink and blue dresses trimmed with white braid, white flannel jacket with four metal buttons, stylish white hat with scalloped edge, height 5 inches, ½ dozen in box Per doz. $1 60

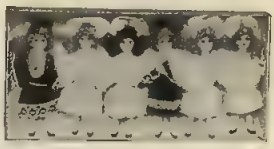
No. 1290 Colored dresses with imitation lace, apron, and collar trimmed with baby ribbon rosettes, white Tam, o'shanta hat trimmed with ribbon, height 5 inches, ½ dozen in box Per doz. $1 60



No. 1292 Nurse doll in regulation nurse costumes, carries infant, white shoes, height 5 inches, ½ dozen in box Per doz. $1 60



No. 1295 Sailor boys and girls in light blue sailor costumes with cream colored blouse and sailor hats, height 5 inches, ½ doz. in box Per doz. $1 60



No. 1296 Mercerized skirts and collars, lace trimmed gingham yokes, colored hats, flowing hair and glass eyes, height 7 inches, ½ dozen in box Per doz. $1 60

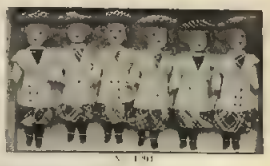
Jointed dressed dolls, bisque turning heads, glass eyes, long flowing hair

No. 1344

No. 1294 Short curly hair, dressed in regulation Riding Hood costume, glass eyes, painted shoes and stockings, height 5 inches, ½ dozen in box. ..... Per doz. $7 50

1334 Assorted plaid skirts with white piqué jackets with large lace trimmed collar, six gilt buttons, plaid yoke, plaid straw hats, painted shoes and stockings, height 9 inches ½ dozen in box..... $4 00

1344 Sailor boys and girls, assorted in three style sailor costumes with anchor in yoke and bow, sailor caps, black shoes and stockings, height 11 inches, 1 pair in box $4 00



No. 1291

No. 1320 Seaside Kewpie girls with wooden sailor caps, girl dressed in white with a dress with white sailor collar, striped trousers, white blouse straw hat, painted shoes and stockings, height 9 inches Per doz. $4 00

No. 1322 Broad double lace flounce, large puffed satin blouse, box plaited yoke, lace revers with ribbon suspenders, colored hat with broad lace edge, painted shoes and stockings height 9 inches, ½ dozen in box ..... Per doz. $4 00

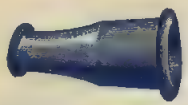
No. 1324

No. 1324 Mercerized skirts, white flannel jackets and collar trimmed with colored ribbon, pretty colored hat tied with bow, painted shoes and stockings, height 9½ inches ½ dozen in box Per doz. $4 00

1328 Boys and Girls in velvet sailor costumes white blouses and white sailor hats, girls dressed in [illegible] sailor [illegible] skirts, painted shoes and stockings height 10 inches, ½ dozen in box 4 00

No. 1328

CIGAR HOLDERS



No. 922. Rubber Nipple Cigar Holder. This little novelty cigar tube may appear ridiculous, but at the same time it is a very nice smoker. It is made of pure Para rubber, natural red color; any cigar will fit it; very agreeable to the teeth and generally liked by smokers. 1⅝ in. long.
Gross ..... 2.75 | Dozen ..... .25

WEIXELWOOD CIGAR TUBES.

Made of aromatic Weixelwood polished natural bark, tube tapering off to flattened mouthbit in natural wood, oil finish.

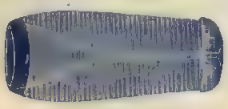
No.	Size.	Gross.	Dozen.
1087	2 in.	2.75	.25
1088	2½ in.	3.25	.30

No. 916. Cigar Holder, select cherry, high oil polish, round club shape, horn bits, full size.
Dozen 40

No. 1089. Cigar Holder, aromatic Weixelwood, polished natural bark with amberine flat bit. Assorted, one dozen on card, 2 sizes, 2 and 2½ in. Dozen ..... .75

CARVED WOOD CIGAR HOLDERS

No. 917. Cigar Holders, 4 styles assorted, one dozen on card, extra finished goods in light and dark, plain and bulb shaped tubes, some carved, latest styles.
Dozen ..... .75



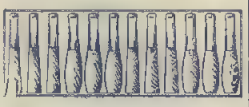
No. 918. Cigar Holder, Chinese amber, clear and clouded, 1¾ in. long, gilt rim, flat mouth bit, 1 dozen on card. Dozen ... .00

No. 1172. Cigar Holder, genuine Vienna Meerschaum, bulb shape, flat amberine bit, 2 in., one dozen sewed on card, finished as nicely as expensive goods.
Dozen 1.00

No. 1170. Galalith Cigar Holders, made of the newly discovered composition called "Galalith" which is manufactured by secret process of milk, is as hard as ivory, polishes as highly, is not inflammable and practically indestructible; 3 shapes in 3 sizes, bulb, round, hexagon, etc., 2 to 2¾ in., in black, white and amber color, flat amberine bits, beautiful goods, one dozen assorted on card. Dozen 1.75

CIGARETTE HOLDERS.

No. 910. Cigarette Holders, swell shape, oil polish cherry wood tube, horn bit, full size.
Dozen ..... .40



No. 911. Cigarette Holders, one dozen assorted on card, two styles, plain and bulb shape, assorted bone mouthpieces, highly polished goods. Dozen ..... .75

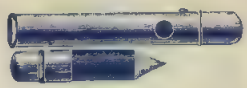
No. 912. Cigarette Holders, plain and bulb shape tubes, assorted one dozen on card, handsomely hand carved with polished buffalo horn bits.
Dozen ..... .75

No. 1171. Cigarette Holder, Vienna Meerschaum, round tube, glazed polish, amberine round bit 1 in., entire length 2⅝ in.; one dozen on card; good sweet smokers. Dozen ..... .75

NOVELTY CIGAR CUTTER.

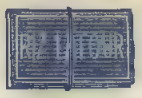
No. 902. Cartridge Cigar Cutter, 2⅜ in. long in shape exactly like a loaded cartridge, bullet is brightly polished nickel, moves on concealed spring and has a cutting edge on end; it slips against opening in the cartridge into which cigar may be inserted for cutting, end removes for letting out clippings; fine novelty pocketpiece.
Gross 4.00
Dozen .... .35

PENCIL CIGAR CUTTER.



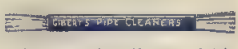
No. 4332. Flat Pocket Pencil and Cigar Cutter Combined, flat nickel tube, one cap reverses, holds a flat pencil, the butt end works on a spring inside against an opening through which a cigar tip may be inserted and end cut off, convenient for vest pocket use.
Dozen ..... .75

CIGARETTE PAPER.



No. 110 Cigarette Paper, specially treated, very fine quality of rib laid rice paper, especially made for cigarette making; so treated that it does not destroy the aroma or quality of tobacco, 100 leaves in stiff pressboard cover, book form with elastic strap; convenient to carry in the pocket without soiling or destroying the leaves.
Per 100 books 1.00
Per dozen books ..... .15

PIPE CLEANERS.

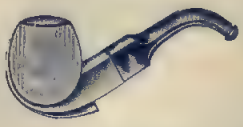


No. 50. Pipe Cleaners, bright steel wire spirally twisted with a close filling of stiff wooly fibre which acts like a brush. It sweeps out the clogging from a pipe stem in a few strokes, absolutely clean; may be washed and used over again; 7½ in. long. 12 in bundle.
Gross bundles .. 2.00 | Dozen .. .20

Genuine Meerschaum Pipes

Each in Leather Case

No. 1313. Genuine Meerschaum Bent Pipe, straight bowl, carved design, rustic shape, formed like the limb of a tree with knots and imitation bark surface, with animal figure on stem next to bowl; entire length 3⅝ in., genuine amber bit 1⅜ in. In plush lined chamois linen case.
Each 1.75



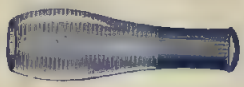
No. 1274. Bent Pipe, genuine Meerschaum, egg bowl with carved band on bottom terminating in a reinforced square stem, bent, genuine amber flat bit 2½ in. long, entire length 4¼ in.; beautiful in appearance; extra fine smoker; each in chamois case.
Each 2.75

1282-1284

No. 1282. Genuine Meerschaum Bent Pipe, entire length 5¾ in., genuine amber bit 1⅝ in., artistic finish, hand carved animal figures on stem next to bowl, graceful bent shape, each in leather case.
Each 1.65

No. 1284. Bent Pipe, genuine Meerschaum, round stem, egg bowl 1½x1¼ in. with hand carved figures of two horses on stem, bent shape, genuine amber round bit, 2¼ in. long, entire length 4¼ in. each in fine plush lined chamois case. Each 2.75

Genuine Meerschaum Cigar Holders



No. 1174. Cigar Holders, genuine Meerschaum, high glazed polish, swell club shape, flattened mouthbit, genuine amber. Entire length 2¼ in., one inch amber bit, each in fine linen imitation leather case.
Each ..... .60 | Dozen 6.50

No. 1175. Entire length 3 in., amber bit one inch, each in fine linen imitation leather case.
Each ..... .75 | Dozen 7.50

No. 1165. Cigar Holder, genuine Meerschaum, round tube 2¼ in. long with ⅞ in. genuine amber round bit, hand-carved figure of miniature horse on top, high glazed polish, entire length 3 in., each in plush-lined chamois case Each ..... .75

No. 1176. Cigar Holder, genuine Meerschaum, high glazed polish, round tapering stem 1½ in. long with a genuine amber saddlebit 1 in. long, entire length 2½ in., in fine plush-lined chamoise case.
Each ..... .75

No. 1163. Sigar Holder, genuine Meerschaum round tube, high glazed polish, 2¼ in. long with a ⅞-in. saddlebit of genuine amber, each in plush-lined chamois case; entire length 3 in.
Each ..... .85

No. 1167. Cigar Holder, genuine Meerschaum round tapering tube, pipe curved, 2¼ in. long with a 1 in., round genuine amber bit, high glazed finish with beautiful hand-carved miniature horse figure on top; very neat; each in plush-lined leather case. Each ..... .85

No. 1164. Cigar Holder, genuine Meerschaum tube 2¼ in., with genuine amber flat bit 1 in., burner end unscrews for cleansing, high glazed finish, select quality, each in plush-lined chamois case.
Each 1.15

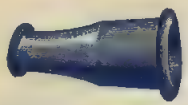
No. 1177. Cigar Holder, genuine Meerschaum, pipe pattern, with bulb shape end, high glazed polish, flattened bent stem with genuine amber bit 1¾ in. long, entire length 3½ in., each in plush-lined chamois leather case, gold stamped. Each 1.00

No. 1179. Cigar Holder, genuine Meerschaum, high glazed polish, carved in design of lily leaves, 1½ in. genuine amber flat bit, entire length 3¾ in., fine genuine leather case, gold stamped.
Each 1.00

No. 1168. Cigar Holder, genuine Meerschaum, tube 2⅞ in. long, enriched with hand carvings of raised openwork, spiral pattern in center and floral wreath rings, burner end unscrews, connected with genuine amber ring, high glazed polish, 1½ in. genuine amber saddlebit, entire length 4 in., strictly high grade; each in chamois case.
Each 1.25

No. 1178. Cigar Holder, glazed polish, genuine Meerschaum with genuine amber ⅞ in. flat bit. This is an especially fine holder, made in three sections, which unscrew on bone connections with amber rings between; outer tube is carved in handsome design of two deer and trees in openwork fashion all around in center; burner end is solid. The inner tube is amberine, which connects the ends and serves as a background for the openwork carving; very beautiful; each in chamois case, plush-lined, 4½ in. long.
Each 1.50

CIGAR HOLDERS



No. 922. Rubber Nipple Cigar Holder. This little novelty cigar tube may appear ridiculous, but at the same time it is a very nice smoker. It is made of pure Para rubber, natural red color; any cigar will fit it; very agreeable to the teeth and generally liked by smokers. 1⅝ in. long.
Gross ..... 2.75 | Dozen ..... .25

WEIXELWOOD CIGAR TUBES.

Made of aromatic Weixelwood polished natural bark, tube tapering off to flattened mouthbit in natural wood, oil finish.

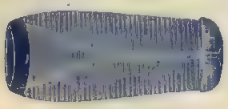
No.	Size.	Gross.	Dozen.
1087	2 in.	2.75	.25
1088	2½ in.	3.25	.30

No. 916. Cigar Holder, select cherry, high oil polish, round club shape, horn bits, full size.
Dozen 40

No. 1089. Cigar Holder, aromatic Weixelwood, polished natural bark with amberine flat bit. Assorted, one dozen on card, 2 sizes, 2 and 2½ in. Dozen ..... .75

CARVED WOOD CIGAR HOLDERS

No. 917. Cigar Holders, 4 styles assorted, one dozen on card, extra finished goods in light and dark, plain and bulb shaped tubes, some carved, latest styles.
Dozen ..... .75



No. 918. Cigar Holder, Chinese amber, clear and clouded, 1¾ in. long, gilt rim, flat mouth bit, 1 dozen on card. Dozen ... .00

No. 1172. Cigar Holder, genuine Vienna Meerschaum, bulb shape, flat amberine bit, 2 in., one dozen sewed on card, finished as nicely as expensive goods.
Dozen 1.00

No. 1170. Galalith Cigar Holders, made of the newly discovered composition called "Galalith" which is manufactured by secret process of milk, is as hard as ivory, polishes as highly, is not inflammable and practically indestructible; 3 shapes in 3 sizes, bulb, round, hexagon, etc., 2 to 2¾ in., in black, white and amber color, flat amberine bits, beautiful goods, one dozen assorted on card. Dozen 1.75

CIGARETTE HOLDERS.

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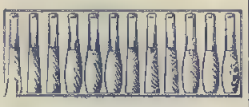
Dozen ..... .40



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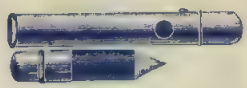
No. 912. Cigarette Holders, plain and bulb shape tubes, assorted one dozen on card, handsomely hand carved with polished buffalo horn bits.
Dozen ..... .75

No. 1171. Cigarette Holder, Vienna Meerschaum, round tube, glazed polish, amberine round bit 1 in., entire length 2⅝ in.; one dozen on card; good sweet smokers. Dozen ..... .75

NOVELTY CIGAR CUTTER.

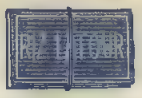
No. 902. Cartridge Cigar Cutter, 2⅜ in. long in shape exactly like a loaded cartridge, bullet is brightly polished nickel, moves on concealed spring and has a cutting edge on end; it slips against opening in the cartridge into which cigar may be inserted for cutting, end removes for letting out clippings; fine novelty pocketpiece.
Gross 4.00
Dozen .... .35

PENCIL CIGAR CUTTER.



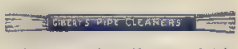
No. 4332. Flat Pocket Pencil and Cigar Cutter Combined, flat nickel tube, one cap reverses, holds a flat pencil, the butt end works on a spring inside against an opening through which a cigar tip may be inserted and end cut off, convenient for vest pocket use.
Dozen ..... .75

CIGARETTE PAPER.



No. 110 Cigarette Paper, specially treated, very fine quality of rib laid rice paper, especially made for cigarette making; so treated that it does not destroy the aroma or quality of tobacco, 100 leaves in stiff pressboard cover, book form with elastic strap; convenient to carry in the pocket without soiling or destroying the leaves.
Per 100 books 1.00
Per dozen books ..... .15

PIPE CLEANERS.

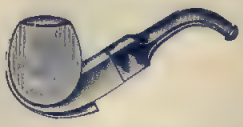


No. 50. Pipe Cleaners, bright steel wire spirally twisted with a close filling of stiff wooly fibre which acts like a brush. It sweeps out the clogging from a pipe stem in a few strokes, absolutely clean; may be washed and used over again; 7½ in. long. 12 in bundle.
Gross bundles .. 2.00 | Dozen .. .20

Genuine Meerschaum Pipes

Each in Leather Case

No. 1313. Genuine Meerschaum Bent Pipe, straight bowl, carved design, rustic shape, formed like the limb of a tree with knots and imitation bark surface, with animal figure on stem next to bowl; entire length 3⅝ in., genuine amber bit 1⅜ in. In plush lined chamois linen case.
Each 1.75



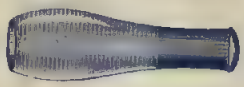
No. 1274. Bent Pipe, genuine Meerschaum, egg bowl with carved band on bottom terminating in a reinforced square stem, bent, genuine amber flat bit 2½ in. long, entire length 4¼ in.; beautiful in appearance; extra fine smoker; each in chamois case.
Each 2.75

1282-1284

No. 1282. Genuine Meerschaum Bent Pipe, entire length 5¾ in., genuine amber bit 1⅝ in., artistic finish, hand carved animal figures on stem next to bowl, graceful bent shape, each in leather case.
Each 1.65

No. 1284. Bent Pipe, genuine Meerschaum, round stem, egg bowl 1½x1¼ in. with hand carved figures of two horses on stem, bent shape, genuine amber round bit, 2¼ in. long, entire length 4¼ in. each in fine plush lined chamois case. Each 2.75

Genuine Meerschaum Cigar Holders



No. 1174. Cigar Holders, genuine Meerschaum, high glazed polish, swell club shape, flattened mouthbit, genuine amber. Entire length 2¼ in., one inch amber bit, each in fine linen imitation leather case.
Each ..... .60 | Dozen 6.50

No. 1175. Entire length 3 in., amber bit one inch, each in fine linen imitation leather case.
Each ..... .75 | Dozen 7.50

No. 1165. Cigar Holder, genuine Meerschaum, round tube 2¼ in. long with ⅞ in. genuine amber round bit, hand-carved figure of miniature horse on top, high glazed polish, entire length 3 in., each in plush-lined chamois case Each ..... .75

No. 1176. Cigar Holder, genuine Meerschaum, high glazed polish, round tapering stem 1½ in. long with a genuine amber saddlebit 1 in. long, entire length 2½ in., in fine plush-lined chamoise case.
Each ..... .75

No. 1163. Sigar Holder, genuine Meerschaum round tube, high glazed polish, 2¼ in. long with a ⅞-in. saddlebit of genuine amber, each in plush-lined chamois case; entire length 3 in.
Each ..... .85

No. 1167. Cigar Holder, genuine Meerschaum round tapering tube, pipe curved, 2¼ in. long with a 1 in., round genuine amber bit, high glazed finish with beautiful hand-carved miniature horse figure on top; very neat; each in plush-lined leather case. Each ..... .85

No. 1164. Cigar Holder, genuine Meerschaum tube 2¼ in., with genuine amber flat bit 1 in., burner end unscrews for cleansing, high glazed finish, select quality, each in plush-lined chamois case.
Each 1.15

No. 1177. Cigar Holder, genuine Meerschaum, pipe pattern, with bulb shape end, high glazed polish, flattened bent stem with genuine amber bit 1¾ in. long, entire length 3½ in., each in plush-lined chamois leather case, gold stamped. Each 1.00

No. 1179. Cigar Holder, genuine Meerschaum, high glazed polish, carved in design of lily leaves, 1½ in. genuine amber flat bit, entire length 3¾ in., fine genuine leather case, gold stamped.
Each 1.00

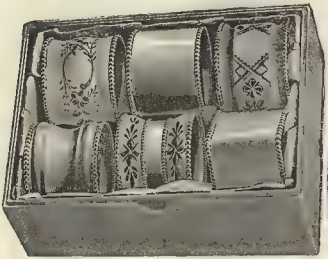
No. 1168. Cigar Holder, genuine Meerschaum, tube 2⅞ in. long, enriched with hand carvings of raised openwork, spiral pattern in center and floral wreath rings, burner end unscrews, connected with genuine amber ring, high glazed polish, 1½ in. genuine amber saddlebit, entire length 4 in., strictly high grade; each in chamois case.
Each 1.25

No. 1178. Cigar Holder, glazed polish, genuine Meerschaum with genuine amber ⅞ in. flat bit. This is an especially fine holder, made in three sections, which unscrew on bone connections with amber rings between; outer tube is carved in handsome design of two deer and trees in openwork fashion all around in center; burner end is solid. The inner tube is amberine, which connects the ends and serves as a background for the openwork carving; very beautiful; each in chamois case, plush-lined, 4½ in. long.
Each 1.50

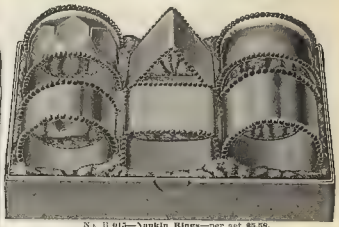
Extra Quality Quadruple Silver Plated Napkin Rings

No. B-014—Napkin Rings—per set $3.90.
6 in plush lined box, satin, bright cut, assorted engravings. Cut ½ size.
Barbour Silver Co.

No. W-03—Napkin Rings—per set $4.50.
6 assorted, finished in burnished beaded filigree, satin, bright cut and engraved.
E. G. Webster & Son.



No. H-1461-1466—Napkin Rings—per set $5.25.
Assorted patterns in leatherette lined box. Cut one-half size.
Homan Mfg. Co.

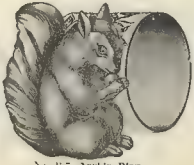


No. B-015—Napkin Rings—per set $5.58.
Plain burnished gold lined, 6 in plush lined box, assorted. Cut ½ size.
Barbour Silver Co.

No. B-12—Napkin Ring—$1.20.
Chased, gold lined. Cut one-half size.
Barbour Silver Co.

PRICES EACH.

No. F-1022—Napkin Ring—$1.38.
Burnished, cut full size.
Forbes Silver Co.



No. B-7—Napkin Ring—$1.50
Satin, bright cut, gold lined. Cut one-half size.
Barbour Silver Co.

No. W-181—Napkin Ring—$2.20.
Burnished. Length 4½ inches.
E. G. Webster & Son.

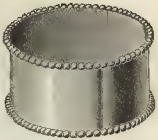
High Grade Quadruple Plated Nickel Silverware

The goods illustrated on this page are 18 per cent nickel silver, quadruple silver plate and silver soldered, thereby making them more durable than any other goods on the market. Prices each.

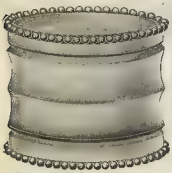
No. P-343 Napkin Ring each $1 00
French gray finish, cut full size.

No. P-346 Napkin Ring each $0 90
French gray finish, cut full size.

No. P-337 Napkin Ring each $1 20
French gray finish, cut full size.



No. P-301 Napkin Ring each $0 80
Plain or satin, cut full size.



No. P-310 Napkin Ring $1 20
Plain or satin, cut full size.

No. P-309 Napkin Ring $1 20
Plain or satin, cut full size

No. P-360 Napkin Ring $0 60
Engraved, cut full size

No. P-361 Napkin Ring $0 80
Engraved, cut full size

No. P-074 Tea Strainer, cut one-half size . $2 70
No. P-074 Tea Strainer, gilt, cut one-half size 3 00

No. P-071 Tea Strainer, cut one-half size $2 70
No. P-071 Tea Strainer, gilt, cut one-half size 3 50

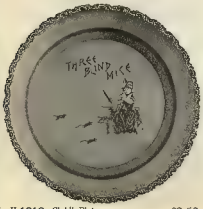
No. P-077 Tea Strainer Plain $1 80
No. P-077 " " Gilt, cut one-half size. 2 10

No. P-076 Tea Strainer Plain . $1 80
No. P-076 " " Gilt, cut one-half size. 2 10

No. P-072 Tea Strainer Plain $1 50
No. P-072 " " Gilt, cut one-half size. 2 00

No. P-069 Tea Ball Plain; cut two-thirds size. $2 10

Extra Quality Quadruple Silver Plated Child's Plates



No. H-1916 Child's Plate, Satin engraved, 7-inch, Homan Mfg Co. .. .$2 50

No. H 1918 Child's Plate Satin Engraved, 7½ inch, Homan Mfg. Co. .$2 50

No. H-2871 Child's Plate French gray, burnished border, 7½-inch Homan Mfg Co. $3 00

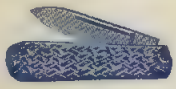
POCKET CUTLERY DEPARTMENT

For a Reliable Line of Sellers This is Unquestionably The Most Careful Selection of Popular Grades, Styles and Qualities Possible To Assemble.

BOYS' POCKET KNIVES.

No. 100. Boys' knife, 1 blade, metal handle, heavy bright tinned, with embossed figure and words, "Our Boy," a big seller. Doz... .19

No. 495. Boys' Pocket Knife. Polished nickel, embossed handle, 1 large blade. Dozen..... .24



No. 101. 1 blade, corrugated iron handle, japanned. Dozen..... .28

No. 532. Lady Leg Knife, nice novelty, white metal handle, embossed imitation fancy stocking and ladies' high boot, exact shape of a booted leg, one clip shape blade, size closed 2½ inches. Per dozen ..... .30

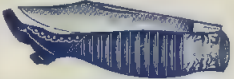
No. 102. One large spear blade, ribbed nickel handle Doz..... .35

No. 103. Novelty fish-shaped knife, size 3¼ in., 1 large clip blade, nickel handle. Doz .35

No. 114. Folding Knife, 1 spear blade entire length opened 6 in., steel handles which open, turn back and lock with a patent catch which holds it firmly in position when in use. Brightly polished. Dozen ..... .85

No. 113. Boys' Chain Pocket Knife, one blade spear shape, imitation bolster, metal handle embossed both sides with figure and reads "Our Boy," 12 inch trace link chain, loop end attached to the knife. Per dozen..... .39

No. 104. 1 large spear pattern blade, nickeled handle, with celluloid sides, double pinned, fancy German silver cap and bolster, 3½ inches long. Dozen..... ..... .40



No. 536. Lady Leg Knife, fine selling novelty, good large size, one 2¾-inch clip blade, metal handle, good lady leg shape, embossed imitation stocking and button boot, stocking painted in assorted colors, size closed 3⅝ inches. Doz..... .40

No. 458. Pocket Knife, 1 large clip blade, fancy pressed bolster, bright white metal handle, inlaid with colored celluloid, nicely polished, well made for a cheap knife. Length 3¼ in. Doz..... .40

No. 105. 1 blade, imitation stag handle, 3⅛ inches long, polished bolsters and shield, large spear blade. Dozen ..... .40

No. 106. 1 blade, 3⅛ inches long Japanned handle. Congress blade 2⅛ inches long. Dozen..... .40

No. 537. Pocket Knife, "Statue of Liberty" embossed on both sides of a bright metal handle with other ornaments, imitation bolster, 1 long clip blade, size closed 3⅝ inches Per dozen ..... .45

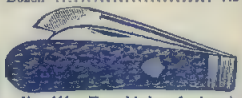
No. 580. Pocket Knife, one 3⅛ inch slender spear blade, metal handle, embossed ribbed design, swell shape with polished steel ball shape bolster ends, size closed 3¼ inches. Per dozen..... .45

No. 110. 2 blade, fancy corrugated japanned iron handle, iron lining and shield, size 2¾ inches, bright metal bolsters, a fine 2 bladed knife for a 5-cent leader. Dozen ..... .42

No. 109. Boys' 2 blades jack knife, nickel plated handle, 1 large and 1 small spear blade, size 2⅞ in., handle embossed with U. S. flag. Dozen ..... .45

No. 107. 1 blade, diamond cut white bone handle, full length, 2¾ in., 3 rivets, 2⅛ in. spear blade. Dozen ..... .50

No. 108. 1 blade, iron handle, imitation stag, "Boy's Easy Opener" in raised letters on handle Dozen ..... .45

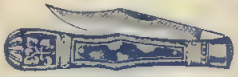


No. 111. Two blades, 1 sheep's foot and 1 small spear, size 2¾ in. iron lined, corrugated handles. Dozen .... .45

No. 534. Hunting Knife, large size, good hunting knife shape, one clip blade 3⅛ in., steel handle, painted and embossed imitation stag polished ends for bolsters, tapering crescent shape, size closed 4 inches. Per dozen..... .47

POCKET KNIVES

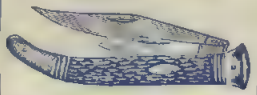
GOOD STAPLE PLAIN AND NOVELTY SHAPES



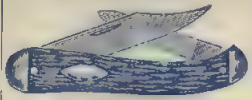
No. 535. Pocket Knife, one blade 2¾ inches, clip shape, bright white metal fancy shaped embossed handle inlaid with varigated shell on each side, imitation bolster, large size closed 3½ inches.
Dozen ..... .49

No. 509. Pocket Knife, iron handle imitation stag center, japanned in stag color; ends polished, imitation double bolster, Congress shape handle, 2 blades, 1 sheep foot and 1 pen shape. Dozen ..... .57

No. 112. Two Blades. 1 large and 1 small spear, size 3½ inch, 1½ inch white metal raised jockey shield and bolsters. Dozen ... .00



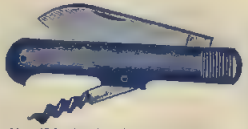
No. 463. Hunting Knife, Junior size, one 3¾ inch clipper blade, 1 small blade, tapering curved steel handle imitation stag with shield. Fancy pressed bolster, entire length 7¾ in. Good looker.
Dozen ..... .60



No. 459. Pocket Knife, 2 blades, 1 spear and 1 pen; fancy tapering curved shape steel handle, enameled imitation stag, imitation shield and bolster. Dozen .... .65

No. 115. Pocket Knife, 1 blade, size 3½ inches; 3 inch steel spear blade, well ground, japanned handle, nickel polished bolster.
Dozen ..... .70

COMBINATION CORK SCREW KNIFE.

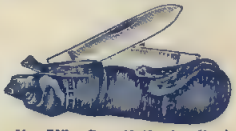


No. 484. Pocket Knife. Combination, with cork screw at back, one large spear blade, polished japanned finished steel handle, with polished steel bolster. A good, strong knife at a low price.
Per dozen ..... .65

No. 483. Pocket Knife. 1 large spear blade, heavy round steel handle, fancy design, japanned imitation ebony, polished bolster, 3¾. Strong knife, big 10c leader. Dozen ..... .65
No. 487. Pocket Knife. Same size and quality as above, with iridescent colored handle, made imitation mother-of-pearl.
Per dozen ..... .75

No. 508. Pocket Knife. Four blades, 3 small and 1 large clip blades, metal handle, embossed and painted imitation stag, imitation polished bolsters and shields on both sides, size closed 3⅝ in
Per dozen ..... .75

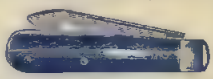
No. 510. Arabian Jack Knife. large size, used also as a hunting knife, 2 blades, one clip and one spear shape, white metal handle, embossed with raised figures, imitation bolsters. Dozen . ..75



No. 505. Dog Knife, handle is made of metal embossed in the shape of a reclining dog, both sides alike; dark oxidized silver finish, polished steel spring, 1 spear blade, closed 2¾ inches. Dozen .65
No. 507. Dog Knife, same as above, 2 blades. Dozen .... .95

No. 504. Pocket Knife, imitation oxidized silver, embossed pattern of flowers, heads and other figures assorted, nice oval shape, one blade, size closed 2⅞ in. Doz., .65
No. 506. Same as above, 2 blades. Dozen ..... .95

No. 553. Schoolmaster's Knife, two blades, spear shape, largest 2 in., one pen blade, tapered plain bone handle, no bolsters, strong knife, 3¼ in. Dozen ..... .75



Boys' Pocket Knife, one blade 2½ in., spear shape, strong, well made, heavy steel bolsters brass shield, big value.
No. 554. Bone handle. Doz... .75
No. 555. Dogwood handle. Doz. .75
No. 556. Ebony handle. Doz... .75

"Easy Opener" Knife, a well made boy's knife with a notch for easy opening, one spear blade 2½ in., steel bolster, well constructed and finished, 3¼ in.
No. 557. Bone handle. Doz. ... .75
No. 558. Dogwood handle. Doz. .75
No. 559. Ebony handle. Doz... .75

No. 117. Jack Knife, 2 blades. Large and small spear, gun-shape handle, japanned stag, size 3½ inches. Dozen ..... .80

No. 123. Jack Knife, 2 blades, 3¼ inch, one large, one small spear, polished, steel bolster and shield, ebony handle. Doz. ... .85
No. 124. Bone handle Doz ... .00
No. 122. Cocobolo. Doz ..... .85

THE SHURE WINNER PRICE LIST

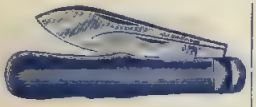
POCKET KNIVES

Every Number a Good Style. Eminent Seller.
Some of the Biggest Values in Cutlery Line.

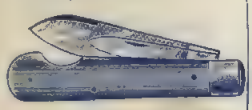
INLAID HANDLE KNIFE.

No. 118. Jack Knife. Two blades. One large clip, one small spear, heavily embossed polished nickel handle, with tortoise shell inlaying, 3¾ in. Dozen ..... .60

No. 120. Pocket Knife. One blade. 3½ inches, brass bolsters, 3 inch spear blade, bone handle, Dozen ..... .90
No. 121. Stag handle ..... .90



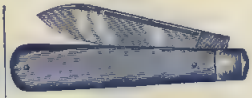
No. 485. Jack Knife. One large spear blade, one small, fancy shape handle, steel bolster, black Japan finish, closed 3⅜ in. Good strong substantially built knife at a low price. Dozen ..... .97



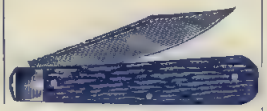
No. 125. Jack Knife. Two blades. One large, one small spear, 3¼ inches, polished nickel bolster, easy opener, bone handle.
Dozen 1.00
No. 126. Rosewood handle .. .95
No. 126½. Ebony handle .. .95

No. 502. Pocket Knife. Two blades, 1 pen, 1 spear shape, black bone handle, carved on both sides with military pictures, 3 brass rivets, brass lined, a new design. Dozen ..... .95

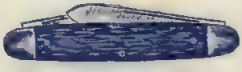
No. 580. Pocket Knife. Two blades. One large, one pen, white bone handle, German silver shield no bolster, 3⅝ in.; nice knife for the price. Dozen 1.05



No. 467. Jack Knife. One large clip blade, good steel, finely polished white bone handle, polished steel bolster and lining. Entire length 7 inches; good substantial looker and strong knife. Knife Board Man's Special. Dozen.. 1.15



No. 468. Jack Knife. Large size, 1 clip, flat shape, stag handle, steel bolster and lining. Well burnished, very strong. Entire length 7 in. in. A big flash. Dozen 1.15
No. 466. As above, with bone handle. Dozen 1.15

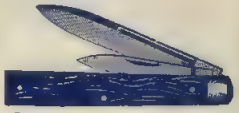


No. 194. Pocket Knife. Two blades. One spear, one pen, 3¼ inches, brass lined, double German silver bolsters, bone handle.
Dozen 1.20
No. 195. Stag handle. Doz. 1.20
No. 196. Ebony handle. Doz. 1.20

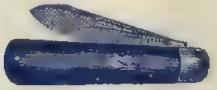
No. 197. Pocket Knife. Two blades. One spear, one pen, size 2¾ inches, handle solid German silver frame, inlaid with colored celluloid and shield.
Dozen 1.25

No. 198. Pocket Knife. Two blades. One spear, one pen, 2¾ inches, solid German silver frame handle, inlaid with celluloid, assorted white and shell.
Dozen 1.25

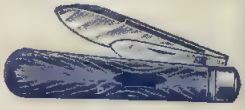
PHYSICIAN'S KNIFE.



Regulation style, long, slender, graceful shape, square end handle, 1 long spear blade, 1 pen blade. Open 6½ in. Bright steel bolster, glazed polished blades.
No. 488. Ebony handle.
Per dozen 1.25
No. 489. Stag handle.
Per dozen 1.25
No. 490. White bone handle.
Per dozen 1.25

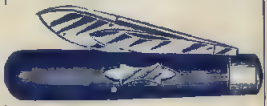


No. 127. Pocket Knife. Two blades. One large, one small spear, 3⅜ inch polished steel bolster, brass shield, bone handle.
Per dozen 1.25



No. 128. Jack Knife. Two blades. One large, one small spear, 3⅜ inches, polished, corrugated steel bolster, brass shield, bone handle. Dozen 1.55
No. 129. Dogwood handle. Doz. 1.50
No. 130. Stag handle. Doz..... 1.50

No. 131. Jack Knife. Two blades. One large clip, one small spear, 3⅜ inches, polished, heavy steel bolster, brass shield ,bone handle. Dozen 1.55
No. 132. Stag handle. Doz..... 1.50
No. 133. Ebony handle. Doz... 1.50



No. 135. Jack Knife. Two blades. One large, one smal spear, 3⅛ inches, steel polished bolster brass shield, bone handle Doz 1.55
No. 136. Dogwood handle. Dozen 1.55
No. 137. Ebony handle. Dozen 1.55

Fine Gold Filled and Sterling Silver Novelties

Illustrations are exact size. PRICES EACH.

KNIFE
Sterling silver handle, French gray finish patent spring blade opener
No. 7619 Two blades. $2 90

No. 7620 Sterling silver, 2 blades $1 50
No. 7621 Sterling silver, 4 blades 1 75

KNIFE
No. 7622 Sterling silver, polished, 4 blades. . $1 50
No. 7623 Sterling silver, polished, 3 blades 1 25

KNIFE
No. 7624 Sterling silver, etched French gray, 2 blades and file $4 00

KNIFE
No. 7625 Sterling silver, 1 blade..... $1 10

KNIFE
No. 7626 Sterling silver, 2 blades and scissors $1 00

KNIVES
Sterling silver, French gray finish, etched and oxidized, assorted 3, 3 and 4 blades.
No. 7627 Per set of six $8 50

KNIFE
Sterling silver, French gray, etched and oxidized.
No. 7628 2 blades..... $3 00

KNIFE
Sterling silver, polished.
No. 7629 2 blades..... 75c

KNIFE
Sterling silver, polished.
No. 7630 4 blades... $1 50
No. 7631 3 blades... 1 20

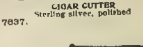
CIGAR CUTTER
Sterling silver handles, steel blade.
No. 7632 ..... $1 50

WHISTLE
Sterling silver, polished, French gray raised ornaments.
No. 7633 ..... $1 30

CIGAR CUTTER
Sterling silver, French gray, oxidized.
No. 7635 ..... $1 45

CIGAR CUTTER
Sterling silver, French gray, oxidized.
No. 7636 ..... $1 50

WHISTLE
Sterling silver, bright finish.
No. 7634..... $1 30



CIGAR CUTTER
Sterling silver, polished
No. 7637. $1 10

BOTTLE OPENER
Star handle, polished steel end.
No. 7689 ..... 75c

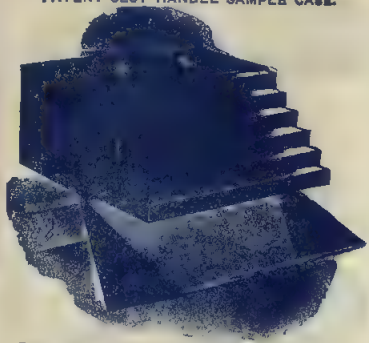
PENCIL HOLDER
Sterling silver, polished.
No. 7638½...65c

FOLDING POCKET CORKSCREW
Sterling silver case, polished.
No. 7639..... $1 45

CANVASSERS'

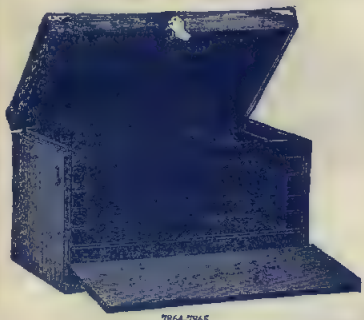
Sample and Stock Cases and Lens Boxes. These are Empty Boxes and Cases for Stock or Samples

PATENT SLOT HANDLE SAMPLE CASE.



Patent Slot Handle Sample Cases, made up of heavy bookbinders' black cloth, as per cut, containing 8 trays, white enamel paper lined, ½ inch deep, strong leather strap handle, which comes through top of cover, thereby holding the case together securely. Measures 6x7x14. Each 1.60

SPECTACLE AND JEWELRY CASE.



7864-7865

No. 7864. Spectacle Case, covers in first quality cloth, 14 inches long, 8½ inches wide, drop front, overhand covers, nickel trimmed edges, nickel lock and clasps, leather handle, has six pull out drawers, velvet lined, five stock drawers and one for lenses, will hold nine dozen. Each 3.75

No. 7865. Jewelry Case, as above, size and quality, has eight first quality plush lined trays, four plain, one watch for 13, 6 and 9 size watches, one chain, one charm and one ring tray, the neatest and handsomest case made. Each 4.00

STOCK LENS BOXES.

No. 7867. Black bookbinders' cloth, purple lined inside cover, with pasteboard lens tray, for holding 5 dozen lenses. Sizes of outside measurement, 1¾x6x8. Each 40c

No. 7868. Superior quality, with rich purple velvet inside cover with lens tray for receiving 5 dozen lenses, with nickel plated snap closing trimmings. Size 2x6½x10. Each 75c

No. 7869. Black canvas covered lens case, to hold 10 dozen lenses, lined and finished same as No. 7868. Size 2x8x12, with nickel snap trimmings. Each. 1.00

SPECTACLE FOLDING CASE.

No. 7861. Flat style sample case, 12½ inches high, 16 inches long, flannel lined, with 18 separate compartments to hold stock, while cover shows samples with elastic sample holders, with nickel lock, key and clasps, also leather handle. This case is covered with black bookbinders' cloth and is a very handy case. Each 3.50

No. 7862. Flat Style Folding Traveling Case. Size 13x11½x3¾ inches, covered with heavy grained leather, lined with fine velvet, heavily nickeled lock, corners and clasps, round, strong handle, absolutely dust proof. Will hold 10 dozen pairs of lenses, 15 dozen frames, etc. Each 4.50

No. 7863. Folding Traveling Case, made up as above, size 13x11¾x5½ inches. This case has two extra velvet lined trays, which are removable and will hold 10 dozen lenses and 30 dozen frames, etc. When closed this case is absolutely dust proof. Each 6.25

SPECTACLE TRAVELING CASE

No. 7863. Covered in fine grain morocco leather, nickel trimmed, patent lock, has six pull out drawers, velvet lined, 1 velvet lens tray to hold 9 dozen lenses, 5 drawers for frames and cases. Each..... 8.35

LEVER CLOCKS

Prices Each.

ANSONIA—Black walnut or oak.

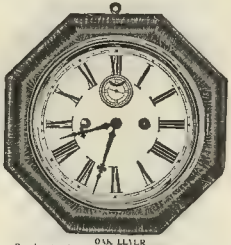
One-day, 6-inch time	$3 90
One-day, 6-inch time, strike	4 75
Eight-day, 8-inch time	5 10
One-day, 8-inch, strike	4 65
One-day, 8-inch, strike	5 50
Eight-day, 8-inch, strike	5 75
Eight-day, 8-inch, strike	7 70
Eight-day, 12-inch, strike	7 40
Eight-day, 12-inch, half-hour strike	9 65

Ansonia.

WOOD LEVER—Polished Veneered.

Eight-day, 6-inch, time	$5 30
Eight-day, 8-inch, time	6 80
Eight-day, 8-inch, strike	6 80
Eight-day, 10-inch, time	6 70
Eight-day, 10-inch, strike	7 70
Eight-day, 12-inch, time	7 60
Eight-day, 12-inch, strike	8 50

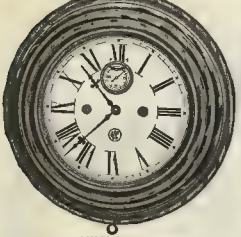
New Haven.



OAK LEVER

One-day, 4-inch, time	$2 35
One-day, 6-inch, time	3 50
One-day, 6-inch, strike	4 35
One-day, 8-inch, time	4 25
One-day, 8-inch, strike	5 00
Eight-day, 6-inch, time	4 90
Eight-day, 8-inch, time	5 25
Eight-day, 8-inch, half hour strike	7 00
Eight-day, 12-inch, time	6 75
Eight-day, 12-inch, half-hour strike	8 50

Waterbury.



NICKEL LEVER

One-day, 8-inch, time	$4 25
One-day, 8-inch, strike	5 00
Eight-day, 8-inch, time	5 95
Eight-day, 8-inch, half-hour strike	7 00

Waterbury.

BRASS OR NICKEL

One-day, 6-inch time	$3 90
One-day, 6-inch, strike	4 75
Eight-day, 6-inch, time	4 10
One-day, 8-inch, time	4 95
One-day, 8-inch, strike	5 50
Eight-day, 8-inch, time	6 75
Eight-day, 8-inch, strike	7 70

Ansonia.

ENGINE LEVER—Brass or Nickel. 6-inch dial.

One-day, time	$5 00
Eight-day, time	6 00

Waterbury.

NAVY—$7.70.

Polished brass, eight-day, time, 3½-inch porcelain dial ivory center, beveled glass. Winds, regulates and sets from outside.

Waterbury.

ORMOND PORT-DAY $12.35.

With office Barometer. Brass dial, 2½ inches. This clock designed for most popular price, more best use, has a heavy polished cast iron office case, dust and water-proof. The dial, which is 2½ inches in diameter, is of porcelain with black Arabic figures. The winding, setting and regulating is all done from the outside, making it unnecessary to remove the mechanism from the case.

New Haven.

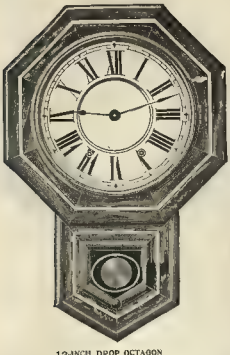
SENTINEL $7.70.

Polished brass. Desk clock. One-day time. 2-inch porcelain dial, magnifying lens. Measures across the back 3½ inches. Stem wind and pendant set. Regulates from outside.

Waterbury.

Seth Thomas Clock Co.'s Fine Office and Lever Clocks.

PRICES EACH.



12-INCH DROP OCTAGON

Rosewood, walnut veneer or old oak, polished. Height, 29½ inches.

8-day, time	$7 78
8-day, strike	9 40

10-INCH DROP OCTAGON, GILT

Rosewood or walnut veneer polished with gilt lines or old oak without gilt lines. Height 24½ inches.

8-day, time	$7 36
8-day, strike	8 95

DROP OCTAGON CALENDAR

Rosewood or walnut veneer, polished, 12 inch dial. Height 35½ inches.

8-day, time	$ 8 64
8-day strike	10 26

BANNER LEVER

Metal case, brass or nickel plated

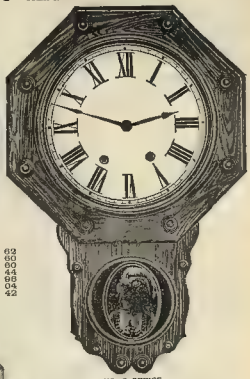
1-day, 6-inch dial	time	$ 5 62
1 " 6 "	strike	6 60
8 "	time	7 44
8 "	strike	8 98
8 " 8 "	time	10 04
8 " 8 "	strike	12 42

Nickel plated 22 cents additional

WOOD LEVER

Wood case, rosewood, walnut or oak veneer polished

1-day	6-inch,	time	$ 6 08
1 "	6 "	time alarm	6 04
1 "	6 "	strike	6 92
1 "	6 "	strike, alarm	6 04
1 "	8 "	time	6 92
1 "	8 "	time alarm	6 92
1 "	8 "	strike	8 02
1 "	8 "	strike alarm	8 02
8 "	8 "	time	9 32
8 "	8 "	time	9 18
8 "	8 "	strike	11 56
8 "	10 "	time	7 54
1 "	10 "	strike	8 20
8 "	10 "	time	10 70
8 "	10 "	strike	12 96
8 "	12 "	time	12 42
8 "	12 "	strike	14 80



NO. 2 OFFICE.

Rosewood or walnut veneer, polished, 12-inch dial. Height, 26½ inches.

8-day, time	$6 42
8-day, strike	10 04

NO. 3. OFFICE—$9.50.

Rosewood or walnut veneer, polished, eight-day, strike, 10-inch dial. Height, 21½ inches.

ENGINE—LEVER

Metal case, brass or nickel plated, 6-inch dial.

1-day, time, brass		$6 28
8 " "	"	9 40

Nickel plated, 22 cents additional

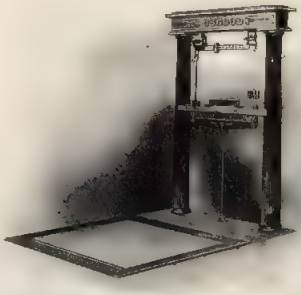
R10—$10.26.

Rosewood or walnut veneer, polished, eight-day-strike, 12-inch dial. Height 26½ inches.

SCALES.

DORMANT WAREHOUSE.

For Triple or Combination Beams, requiring no Loose Weights, add to Double Beam List Price $10.00



Scale Fitted with Short Iron Columns and Cap, as shown on preceding page, no Extra Charge.

Double Iron Pillar and Cap, Extra Heavy Brass Beam; Built Complete Ready to Set on Floor, Seasoned Oak Platform, Finished in Natural Color and Varnished, Single Pillar and Cap Finished in Blue and Gold Striped, Tool Steel Pivots and Bearings.

Nos	1424	1426	1428	1430
Capacity, lbs.	2000x½	2500x½	3500x½	5000x½
Platform ft.	30x39	37x46	42x46	48x48
With Single Beam, Each	$98.00	112.00	125.00	170.00
With Double Beam, Each	106.00	120.00	133.00	180.00

PORK, GRAIN AND WOOL.

With Brass Beam and Sliding Poise.

WITH WHEELS.

No.	Capacity Lbs.	Platform Inches	Each	Each with Bag Rack
1700	1000	42x30	$73.00	$78.00
1710	1200	42x30	77.00	82.00
1720	1500	42x30	85.00	90.00

WITHOUT WHEELS.

No	Capacity Lbs.	Platform Inches	Each	Each with Bag Rack
1730	1000	42x30	$68.00	$73.00
1740	1200	42x30	72.00	77.00
1750	1500	42x30	80.00	85.00

PORTABLE PLATFORM.

Solid Brass with Sliding Poise and Thumb Screw.

WITH WHEELS.

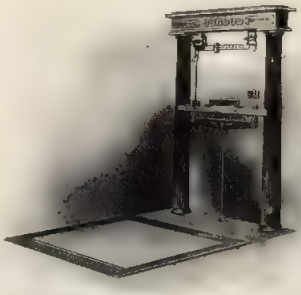
No.	Capacity Lbs.	Platform Inches	Each
1800	2500x½	26x34	$85.00
1802	2000x½	25x33	75.00
1804	1500x½	21x28	56.00
1806	1200x½	20x28	49.00
1808	1000x½	17x26	43.00
1810	800x¼	17x26	38.00
1812	600x¼	16x25	33.00
1814	400x¼	15x21	32.00

Without Wheels, deduct $1.00 from above list.

SCALES.

DORMANT WAREHOUSE.

For Triple or Combination Beams, requiring no Loose Weights, add to Double Beam List Price $10.00



Scale Fitted with Short Iron Columns and Cap, as shown on preceding page, no Extra Charge.

Double Iron Pillar and Cap, Extra Heavy Brass Beam; Built Complete Ready to Set on Floor, Seasoned Oak Platform, Finished in Natural Color and Varnished, Single Pillar and Cap Finished in Blue and Gold Striped, Tool Steel Pivots and Bearings.

Nos	1424	1426	1428	1430
Capacity, lbs.	2000x½	2500x½	3500x½	5000x½
Platform ft.	30x39	37x46	42x46	48x48
With Single Beam, Each	$98.00	112.00	125.00	170.00
With Double Beam, Each	106.00	120.00	133.00	180.00

PORK, GRAIN AND WOOL.

With Brass Beam and Sliding Poise.

WITH WHEELS.

No.	Capacity Lbs.	Platform Inches	Each	Each with Bag Rack
1700	1000	42x30	$73.00	$78.00
1710	1200	42x30	77.00	82.00
1720	1500	42x30	85.00	90.00

WITHOUT WHEELS.

No	Capacity Lbs.	Platform Inches	Each	Each with Bag Rack
1730	1000	42x30	$68.00	$73.00
1740	1200	42x30	72.00	77.00
1750	1500	42x30	80.00	85.00

PORTABLE PLATFORM.

Solid Brass with Sliding Poise and Thumb Screw.

WITH WHEELS.

No.	Capacity Lbs.	Platform Inches	Each
1800	2500x½	26x34	$85.00
1802	2000x½	25x33	75.00
1804	1500x½	21x28	56.00
1806	1200x½	20x28	49.00
1808	1000x½	17x26	43.00
1810	800x¼	17x26	38.00
1812	600x¼	16x25	33.00
1814	400x¼	15x21	32.00

Without Wheels, deduct $1.00 from above list.

SCALES.

PORTABLE PLATFORM.

Imperial, Brass Beam and Sliding Poise, Japanned Castings, Hardwood Pillars, Caps and Platform, Painted Blue.

Capacity Lbs.	Beams Graduated Lbs.	Platform Inches	Each
600	50x¼	16½x24	$18.00
800	50x¼	17 x24½	20.00
1000	100x½	17½x25	22.00
1250	100x½	18 x26	27.00
1500	100x½	20 x28	32.00

American, Brass Beam and Sliding Poise, Japanned Castings, Hardwood Pillars, Caps and Platform Boards, finished in Natural Color.

Capacity Lbs.	Beams Graduated Lbs.	Platform Inches	Each
600	50x¼	16x25	$18 00
800	50x¼	16x26	20 00
1000	100x½	17x26	22.00
1250	100x½	18 26	27.00
1500	100x½	19x28	32.00

EMPIRE GROCERS'.

Capacity of Beam is 60 lbs., each bar is marked on both sides, the lower Bar in ½ lb. marks to 50 lbs. and the upper Bar in oz. marks to 11 lbs. Loose weights complete the capacity of the scale.

Best Tempered Tool Steel Pivots and Bearings.

Finished in Vermilion and Gold Striped with attractive transfers. The Scale is furnished with a Scoop, which when in use, is balanced by a small Poise at left end of beam, and is fitted with adjustable platform feet.

Double Brass Notched Beam, Nickel Plated.

		Each
No. 2850.	**Capacity 250 lbs.** x 1 oz., Platform 12 x 15 in., **Tin Scoop**	$24 00
No. 2860.	**Capacity 250 lbs.** x 1 oz., Platform 12 x 15 in., **Tin Funnel Scoop** . . .	25 50
No. 2870.	**Capacity 250 lbs.** x 1 oz., Platform 12 x 15 in., **Brass Scoop**	25 00
No. 2880.	**Capacity 250 lbs.** x 1 oz., Platform 12 x 15 in., **Brass Funnel Scoop** . .	27 00

SCALES.

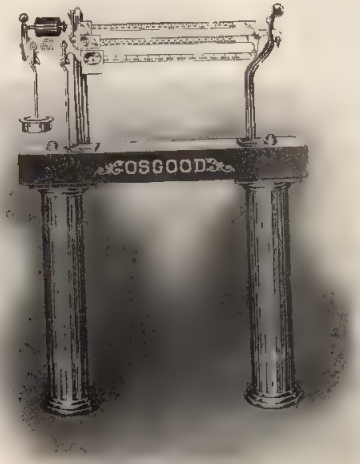
FARM STOCK AND WAGON.

HERCULES, STEEL LEVER CONSTRUCTION, BRASS BEAMS AND POISES.

With Standard Beam Box, when Scales are ordered without Box, deduct $2.50.

	250	260	270	280
Nos.	3	4	5	6
Capacity, tons	8x14	8x14	8x14	8x14
Size of Platform, ft.	2	2	2	2
Distance from Edge of Platform to Beam Rod, ft.	$70.00	75 00	80 00	100.00
With Double Beam, Each	75.00	80.00	85.00	107.50
With Triple Beam, Each				

OFFICE FIXTURES.



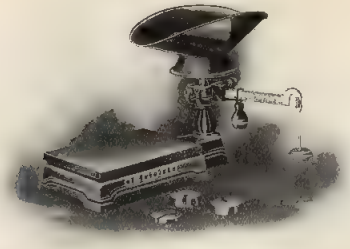
SHORT IRON COLUMN AND CAP.

A Very Heavy and Substantial Office Fixture, Can be used in Dormant, Wagon Warehouse and Railroad Depot Scales.

	Each
For 2 to 6 Ton Scales, without Beam	$15.00
For 6 to 15 Ton Scales, without Beam	20 00

SCALES.

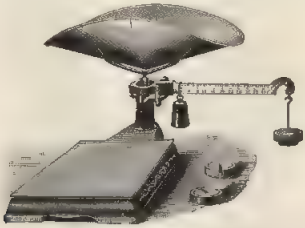
GROCERS' UNION.



Heavy Pattern, Double Platform and Scoop, Brass Beam, Notched, with Hanging Poise, Finished in Vermilion with Gold Stripes and Attractive Transfers.

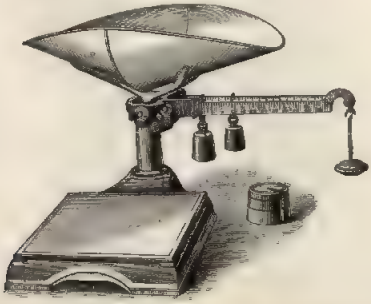
		Each
No. 2750	Capacity 244 lbs x 1 oz., Platform 10½ x 13½ in., Single Beam, Tin Scoop	$14.00
No. 2760.	Capacity 244 lbs. x 1 oz., Platform 10½ x 13½ in., Double Beam, Tin Scoop	15.00
No. 2770.	Capacity 244 lbs. x 1 oz., Platform 10½ x 13½ in., Single Beam, Brass Scoop	15.00
No. 2780.	Capacity 244 lbs. x 1 oz., Platform 10½ x 13½ in., Double Beam, Brass Scoop	16.00

For Tin Funnel Scoop add $1 00 to Tin Scoop Lists; For **Brass Funnel Scoop** add $1 50 to Brass Scoop Lists.



Notched Nickeled Steel Beam, Finished in Black, Steel Pivots.

		Each
No. 3.	Capacity 240 lbs x ½ oz., Platform 10 x 14 in., Single Beam, Tin Scoop	$4.50



Notched Polished Brass Beam, Finished in Black with Platform Striped in Gilt, Steel Pivots.

		Each
No. 5.	Capacity 240 lbs. x ½ oz., Platform 10 x 14 in., Double Beam, Tin Scoop	$5.00

All above, one in a box

TOYS Continued

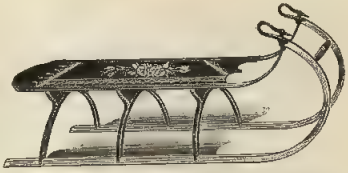
DOLL CARRIAGES—Continued

No. 143 Body finished in dark green, lined with English leather cloth to match, gear and wheels enameled to match body, 8 and 12 inch wheels with ¾-inch rubber tires, size of body 12x23 . . . Each $8 00

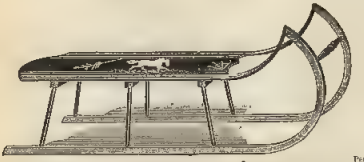
No. 144 Body finished in dark green, upholstered with English leather cloth to match, gears and wheels enameled to match body, polished brasshood stick irons, 8 and 12 inch wheels, ¾ inch rubber tires, size of body 12x25 inches . . . . Each $11 50

SLEDS

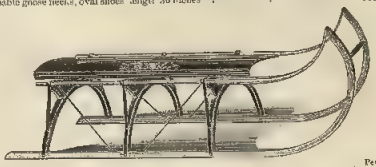
No. 158 Wood top, painted, decorated and striped flat top shoe 2 square knees, length 30 inches . . . . . Per doz. $4 50



No. 161 Wood bars, decorated top in bright colors 3 bent knees 6 fulcrum braces and 4 malleable goose necks, oval shoes length 36 inches . . Per doz. $18 00



No. 159 Wood top, painted, decorated and striped flat top shoe, 3 square knees, length 36 inches . . . Per doz. $9 00



No. 162 Gear made of second growth stock, securely braced with 6 upright knee braces and 6 runner braces, top shaped on edges and decorated in attractive colors, oval shoes, length 36 inches . . . Per doz. $24 00

No. 160 Wood, painted in bright colors and striped, 3 bent knees, well braced, flat shoe, length 36 inches . . . Per doz. $13 50

No. 163 Hardwood coaster ornamented top, 2 bar 1 holes, flat shoes, length 30 inches . . . Per doz. $4 50

No. 164 Hardwood, painted and decorated, 4 hand holes, round spring shoes, length 36 inches . . . 9 00

No. 165 Hardwood, painted and decorated, 4 hand holes, round spring shoes, length 42 inches . . . Per doz. $16 00

TOYS Continued

We do not break crates except at an additional charge of 20 per cent. We are compelled to make this charge in every instance to cover extra cost of packing

DOLL CARRIAGES

No. 146 Go-cart, reed body, colored, 6½-inch seats, 8-inch front and 5-inch front wheels, 1 dozen in crate, not broken . Per doz. $4 50

No. 149 Stationary go-carts, varnished reed body with adjustable dash and back upholstered, steel springs, 6 and 10-inch wheels 8½-inch seat . Per doz. $28 00

No. 170 Collapsible go-carts, steel wheels and frame, cloth seat . Per doz. $33 60

No. 147 Folding go-cart, reed body, wood axles, 6-inch wood wheels, steel frame, 6½-inch seat, ½ dozen in package, not broken . Per doz. $8 50

No. 150 Folding go-cart, reed body, adjustable dash and back, upholstered seat, green enameled gear, steel frame and axles, four 6-inch steel wheels . Per doz. $27 60

No. 142 English doll carriage, finished in maroon, lined with leather cloth, gear and wheel enameled to match body, ⅝-inch rubber tires, size 10½x19 inches Per doz. $78 00

No. 148 Folding go-cart, reed body, wood axle, 6½-inch wood wheels with metal tires, steel frame, ½ dozen in crate, not broken Per doz. $14 00

No. 146 Folding doll go-cart, body finished in dark blue, English leather cloth with hood, seat and back to match 7-inch wheels, ⅝-inch rubber tires, size of body 18x8½ inches Per doz. $60 00

No 156 and 157 No 155

No. 155 Folding steel go-cart, has stationary back and green enamel, wood seat, step and arm rests varnished in natural colors, frame of steel, frame gear and axles of cold rolled steel, bases enamel, 6 and 8-inch wheels Per doz. $33 60

No. 156 Same as No 155, with rubber tires 47 60

No. 157 Same as No 155, reclining back, upholstered seat of green artificial leather, rubber tires 54 00

THE COMMERCIAL MOTORCAR CO.

INCORPORATED 1905

Times Building, New York, N. Y.

MOTOR TRUCKS FOR EVERY PURPOSE

Write for estimates and records of performance

Palmbla 'Syphon' Carburetor

1909 MODEL

FLEXIBLE CHOKE TUBE and ONE AIR INTAKE creates complete vaporization at all motor speeds. We are ready to prove our claims.

THE NORTH CHICAGO MACHINE CO.

NORTH CHICAGO - - - - - ILLINOIS

5 TON HEWITT TRUCK

"BEST BY TEST"

3-TON—2-TON—LIGHT DELIVERY—ALL SATISFIED

HEWITT MOTOR CO., 10 E. 31st St., New York City

GRAMM-LOGAN COMMERCIAL CARS

The "Great Trio" in Business Wagons

Model "X" Three-Ton Truck Chassis

A masterpiece of design and construction. Equipped with a 40 H. P. Motor, built to carry with ease the load for which it is rated. Will give consistent service year in and year out. Price, **$3,500**

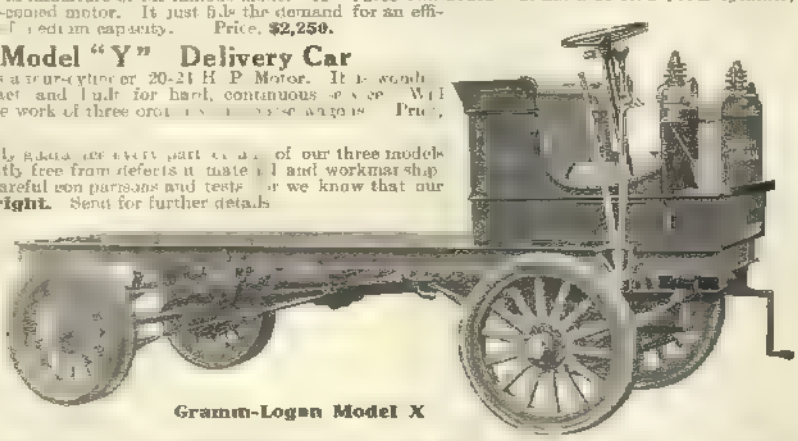
Model "V" One and One-half-Ton Truck Chassis

A duplicate in miniature of the famous Model "X" Three-Ton Truck. It has a 20 H. P., four-cylinder, vertical, air-cooled motor. It just fills the demand for an efficient medium capacity. Price, **$2,250.**

Model "Y" Delivery Car

[illegible] a four-cylinder 20-24 H. P. Motor. It is [illegible] compact and built for hard, continuous service. Will [illegible] to the work of three ordinary delivery wagons. Price, **$1,600.**

We positively guarantee every part [illegible] of our three models to be perfectly free from defects in material and workmanship. We invite careful comparisons and tests for we know that our trucks are **right.** Send for further details.



Gramm-Logan Model X

THE GRAMM-LOGAN MOTOR CAR CO., Bowling Green, Ohio

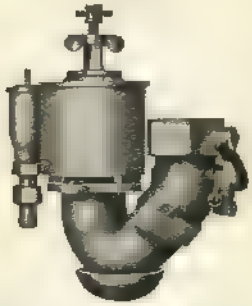
PIERCE SPECIAL FIRE CHIEF WAGON

The cut herewith shows a special fire chief's wagon made by the Geo. N. Pierce Co. of Buffalo in conjunction with the Foss Hughes Motor Car Co., (the Philadelphia representative of Pierce cars) for the chief of the Philadelphia Fire Department. The design of the machine is the result of suggestions from several of Philadelphia's fire department officials. The chassis is that of a 4-cylinder, 24 H. P., Pierce-Arrow stock car, and the body was especially constructed and attached by the Foss-Hughes Co. The body consists of two runabout seats and a box compartment in the rear, which contains hose, chemical tanks, axes, crow bars and other equipment required by the fire chief. Against the dash is a rail to which is attached a stationary gong with a swinging clapper which is kept in motion by the occupant of the left front seat. The machine is capable of speeds up to 50 miles per hour, and is expected of course, to be a great saver of time in getting the chief to the fires.

[illegible] recently built by the Geo. N. Pierce Co. in conjunction with the Foss Hughes Motor Co. of

Palmbla 'Syphon' Carburetor

1908 MODEL



PATENT ALLOWED NEW PATENTS PENDING

WILL RUN PERFECTLY AT ALL SPEEDS

Stationary Hit and Miss, or Throttling Type, Four Cycle High Speed Motors, all Types, Two Cycle Two-Port, Two Cycle Three-Port, Convertible 2 or 4 Cycle.

FIT ANY MOTOR. Gasoline Connection Changeable for 3 Points. 45 degree Flange Connection Permits of Top or Side Outlet.

The North Chicago Machine Co.
North Chicago, Ill.

We Solicit a Trial and Guarantee Our Claims

Wibble-Wabble

That's the way all the other wheels go

Indestructible Steel Wheels

are never out of true, cannot collapse

INDESTRUCTIBLE STEEL WHEEL CO.
1221 Michigan Ave., Chicago

LOGAN 1908

Model T One Ton Truck

A truck equipped with a four cylinder air cooled 20 H. P. Motor, built for service and fitted to carry its load day in and day out under all conditions. For detailed description address

THE LOGAN CONSTRUCTION CO.
CHILLICOTHE, OHIO

Peugeot Chains—"Strongest in the World."
296 BROADWAY, NEW YORK

CRAMP

Parsons' Manganese Bronze Axles

Stronger than steel. Thousands in use. None have ever broken.

The Wm. Cramp & Sons Ship and Engine Building Company
Philadelphia, Pa.

Motor Cars Better for Hauling Gas Tanks

The Prest-O-Lite Co. of Indianapolis, Ind., well known as the makers of the famous "Prest-O-Lite" comprest gas tanks, find it advantageous to use motor cars in place of horse drawn vehicles and they now have one Premier, 4-cylinder, gasoline car doing the work of four horses and two wagons previously used. The car has a carrying capacity of 1,500 pounds and makes a daily average mileage of 45 which includes about 25 short trips within a radius of four miles. They care for the car at their own garage and they pay the operator $80 per month. No separate account of lubricating oil and gasoline has been kept, hence no definite figures covering these items are available. Repairs have cost them $25 per month and they calculate depreciation of the car at $500 for the first year and $100 for each succeeding year.

The expense of maintaining the horse service previously employed included the cost of caring for and feeding, $12 to $18 per month for each of the four horses, $3 per month for shoeing each horse and $45 per month for each of the two drivers. The depreciation of horse value was reckoned at 20 per cent per year and of the vehicles at 10 per cent per year.

"That there are not yet enough types of cars, particularly commercial vehicles, on the market, is every day more evident," said Mr. Harry Levey, a young business man of large interests, who has become identified with motor racing. "I am in the market for thirty-two light, gasoline delivery cars, capable of a carrying capacity of fifty-four cubic feet, but of not necessarily more than 200 pounds, besides the driver The ideal car for my purpose would be a runabout of the buckboard type, costing about $300, and I could place as many more among business connections. I do not know of anything now built which fills these requirements, yet the thing is so simple that I could build it myself."

Don't Let Another Season

get by you without adopting our **Pressed Steel Step Hangers.** Now used by over twenty of the most prominent makers. Write for Samples or Prints.

The Crosby Company

BUFFALO, - - - - NEW YORK

MADE IN SEVERAL STYLES OF HEAD

THE COMMERCIAL MOTORCAR CO.

INCORPORATED 1905

TIMES BUILDING - NEW YORK, N. Y.

We furnish Business Automobiles of all types and makes machines exactly suited to any class of service.

We especially call attention to the SAFIR Motor Truck manufactured in Zurich, Switzerland. Descriptive circular and record of past performances mailed on request.

The Richest Field For The Agent

Rapid Commercial Cars

I wish every man who sells automobiles knew as I know the splendid opportunity just now for selling commercial motor cars.

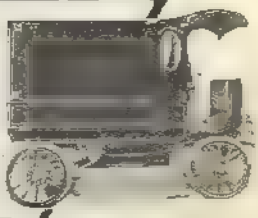
The entire country seems to be waking up to the fact that money can be made both in the carrying of passengers as a business and in the delivery of merchandise by motor wagons.

The man who handles the Rapid motor wagons can get the cream of the business. We have special rights in this field, and our success has built up the largest business in commercial motor cars in the United States.

We make passenger cars, delivery wagons, trucks, buses, fire hose wagons, hospital ambulances, and anything specially designed. If you have a garage and are able to represent us properly, write me to-day, I have something of interest to tell you.

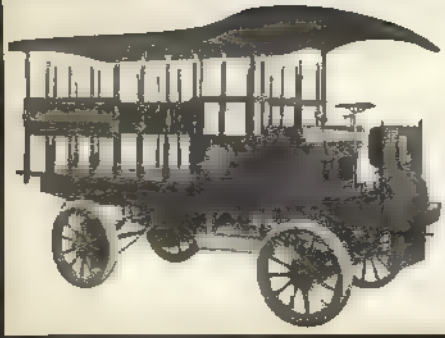
B. M. HENRY, Sales Manager

RAPID MOTOR VEHICLE CO., 125 Rapid St., Pontiac, Mich.



Seats 12 Passengers, $2500

One Ton Delivery, $1700



THE MEISELBACH TRUCKS

One, Two and Three Tons

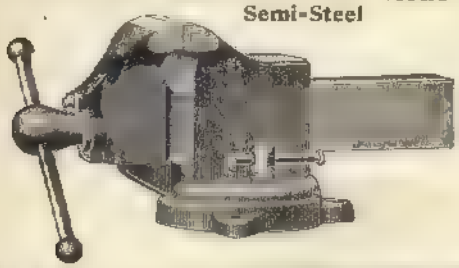
Friction Drive, Perfectly Supported. All Wheels on Timken Rollers. Powerful Brakes. The Simplest and Easiest Controlled Trucks yet shown. Thirty Horse Power.

THE A. D. MEISELBACH MOTOR WAGON CO.

North Milwaukee, Wisconsin, U. S. A.

Agents wanted in unoccupied territory.

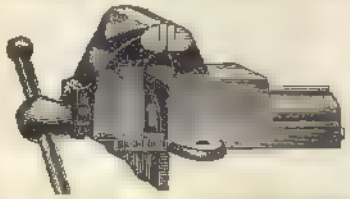
PARKER'S SLIDE SOLID JAW VISES
Semi-Steel



Jaws Inches	Opens Inches	STATIONARY BASE No.	Wt	Price	SWIVEL BASE No.	Wt	Price
3¼	4	29	30	$ 6 [illegible]	22	35	$ 7 0[illegible]
3¾	6¼	39	47	7.00	23[illegible]	5[illegible]	8 75
4¼	7	49	61	9 [illegible]	24[illegible]	73	11 [illegible]
4¾	8	59	80	11 75	25	92	14 50
5½	9	69	1[illegible]5	16.25	26[illegible]	132	20.50
6¼	9½	79	134	24.00	279	185	30 00

The above are all equipped with the new improved slide strengthener. The steel faces are all milled and fitted to the jaws and may be renewed.

PARKER'S OVAL SLIDE VISES



No.	Width Jaw Inches	Weight, Lbs.	Price, Each
30	2[illegible]	8½	$ 2.50
31	3	13	3 00
32	3¼	19	4 25
33	3½	22	4 75
34	4	28	6 50
35	4¾	35	9 50
36	5¼	62	12 00

PARKER'S PATENT COMBINATION PIPE VISES

Round and Pipers' Jaws

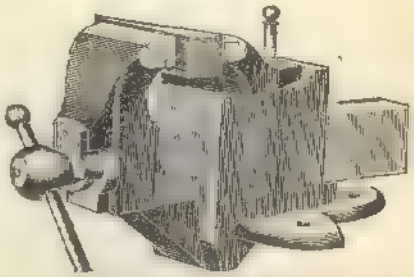
Swivel Base

No.	Jaws Inches	Weight, Lbs.	Holds Pipe, Inches	Price
87	3⅝	41	2 and under	$16 00
88	4⅛	59	3 and under	20 00
288½	4¾	105	4 and under	28.00
289½	5⅝	155	6 and under	35 00

Stationary Base

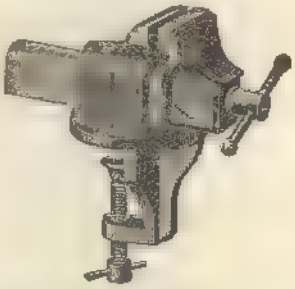
88½	4¾	94	4 and under	$28 00
89½	5⅝	141	6 and under	35 00

PARKER'S PATENT VICTOR VISES
Adjustable Jaws



Size Jaws Inches	STATIONARY BASE No.	Weight	Price	SWIVEL BASE No.	Weight	Price
3¼	37[illegible]	[illegible]	$ [illegible]	27	30	$ 7 00
3⅞	371	34	7 00	271	42	8 50
4½	372	57	10 00	272	60	12.50
5	373	73	14.00	273	78	16 00
5½	374	98	17 00	274	110	19.00
6¼	375	150	24.00	275	165	27 00

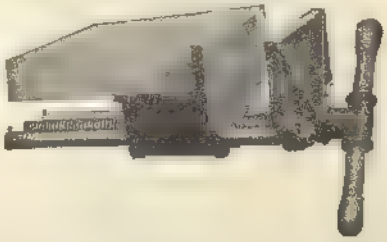
DIAMOND VISES



Made in Three Patterns

No. 1 Plain Bench Vise, 2½-inch, jaw opens 3 inches . . . . . each $2 00
No. 2 Clamp Bench Vise, 2½ inch, jaw opens 3 inches . . . . . each 2 40
No. 3 Swivel Bench Vise, 2½-inch jaw opens 3 inches . . . . . each 2 60
Pipe Jaws to fit above vises . . . . . per pair .35

WILCOX RAPID ACTING VISE
No. 230 for Wood Workers



No. 1. Jaws, 7 inches wide, 4 inches deep; open, 10-inch screw, 1-inch diameter, 4 threads to 1 inch; weight, 29½ lbs. . each $5.00
No. 2. Jaws, 10 inches wide, 5 inches deep, open, 12-inch screw, 1 inch diameter, 4 threads to 1 inch; weight, 36½ lbs. . . each 6.00

ROCK ISLAND AUTOMATIC VISES

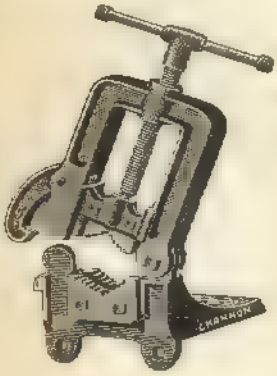
SOLID JAW				ADJUSTABLE JAW			
No.	Width Jaw Inches	Wt., Lbs.	List Price	No	Width Jaw Inches	Wt., Lbs	List Price
1	1½	3	$ 6 [illegible]	20	3½	14	$13 00
2	2½	6	7.50	21	4	66	16 00
3	3	20	9.50	22	4¾	85	18 80
4	3½	33	11.00	23	5¼	135	28 80
5	4	56	13 50	24	6	156	38 00
6	4¾	75	16.50	25	7	238	54.00
7	5¼	120	24.00				
8	6	140	36 00				
9	7	220	45 00				

"BULLOCK" BENCH AND MACHINISTS' VISES

Best material and workmanship. Superior in style, finish and strength.

STATIONARY BASE				SWIVEL BASE			
No.	Width Jaw Inches	Wt. Lbs	List Price	No	Width Jaw Inches	Wt Lbs	List Price
102½	2½	17	$ 4 75	202½	2½	20	$ 5 20
103	3	22	6 00	203	3	28	7 50
103½	3½	27	7 [illegible]	203½	3½	37	8 75
104	4	42	8 50	204	4	52	10 50
104½	4½	53	10 [illegible]	204½	4½	65	12.50
105	5	72	13 00	205	5	90	16.00
105½	5½	100	18 [illegible]	205½	5½	117	22 00
106	6	130	25 00	206	6	152	30 00
107	7	210	37 50	207	7	235	42 50

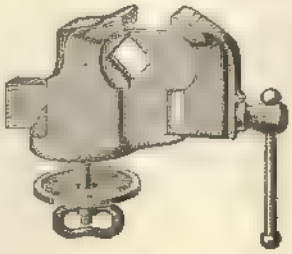
CHANNON MALLEABLE IRON PIPE VISES



No	For Pipe Inches	Weight Lbs	Price
0	⅛ to 2	12	$ 3.00
1	⅛ to 2½	17	4.00
2	¼ to 3½	34	7.00
3	½ to 4½	25	10.00
4	2 to 6	60	20.00

Nos. 1, 2 and 3 have hook and pin. Nos. 0 and 4 have pin only.

SMITH'S COMBINATION PIPE VISES



No	Wt Lbs	Takes Pipe Inches	Price Complete Each
2	47	⅛ to 2	$16 00
3	[illegible]	¼ to 3	20 00
[illegible]	[illegible]	¼ to 4	28 00

"VULCAN" CHAIN PIPE VISE

Size folded, 6x8x8 inches. Weight, 10 lbs. Light, strong, compact. The same principles of the Chain Pipe Wrench have been applied to this vise. Made in one size only for ⅛ to 2½-inch pipe . . . . . each, $5.00

Prices, Extra Parts

Base	Jaws, Pair	Chain	Handle	Screw	Nut	Washer
$1.00	$2.25	$1.25	.50	.20	60	20

SOLID BOX VISES

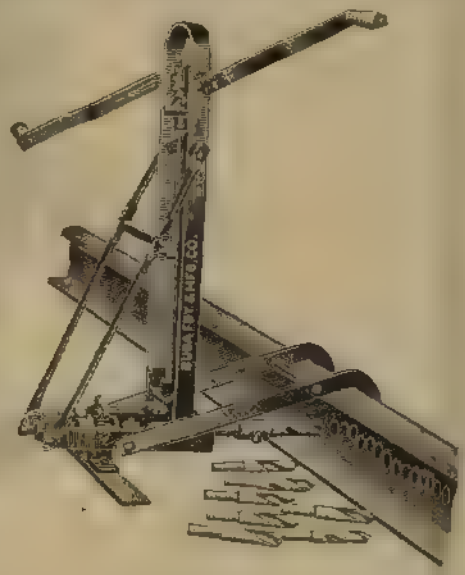
Extra Quality. Extra Finish

Width of Jaw Inches	Weight About Lbs	Price Each	Width of Jaw, Inches	Weight About, Lbs.	Price Each
3¾	35	$10 00	6	100	$22 00
4	40	10 50	6	110	24.00
4¼	45	11 00	6	115	25.00
4½	50	11 50	6½	120	26.00
4¾	55	12 00	6½	125	27 50
5	60	13 [illegible]	6½	130	29 00
5	65	14 [illegible]	7	140	33 00
5¼	70	15 00	7	150	36.00
5¼	75	16 [illegible]	7¼	160	41.50
5½	80	17 50	7¼	170	44 50
5½	85	18 50	7½	180	47 00
5¾	90	20 00	7¾	190	53.00
5¾	95	21 00	8	200	56.00

PAULUS TRACK DRILLS.

AUTOMATIC FEED.

Considered the Most Efficient Device for the Economical Drilling of Rails; It Saves Time in Drilling a Hole as the Action of the Bit is Continuous, there being no Lost Motion or Time by Going Back to Starting Point. The Operator is Enabled to Maintain an Erect Position while Drilling Rail or Angle Bar. The Bit does not Require to be Withdrawn from the work to permit passing of a Train. The Top of the Frame is Arranged so that it may be Thrown Back and the Hooks Lifted. This Requires but a Second and is as Readily Replaced. The Feed of this Drill is Automatic and Requires no Attention; A Dog Connecting with a Ratchet on the Feed Screw is Operated by an Eccentric which is put in Motion by the Revolving Spindle and Results in as Coarse a Feed as is Consistent with the Best Results from the Standpoint of Time and of Safety of the Bit. The Frame of the Machine is of Malleable Iron. The Wearing Parts are of the Best Material.



	Each
No. PA—Complete without Twist Drill	$21.00
‡***No. PB—Equipped with Rich Spindle Chuck and One Flat Drill Bit***	*25.00*

Weight Each about 60 lbs.

Packed Loose.

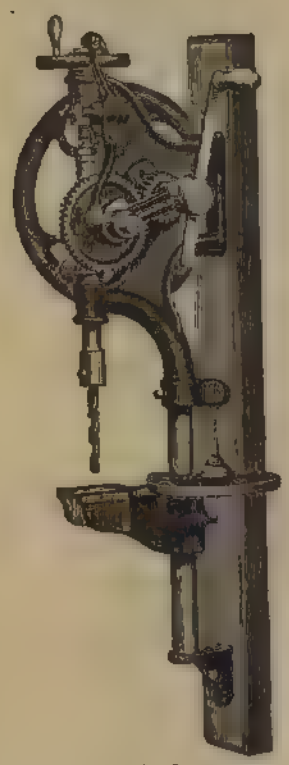
This Cut shows Drill in Position to **Let Train Pass.** The Back Braces are made to "Break" allowing the Top **to be Thrown Back and the Hooks Free from the Rail.**

DIRECTIONS FOR OPERATING

To Set Up a Drill for Operation Pull Handle Back between Braces and throw the Upright Part of the Drill Down, as shown in Cut. Throw the Hooks over the Rail then Straighten up the Brace and Bring Drill to an Upright Position, Screw the Ratchet Wheel with Hand, and Tighten the Bit up Against the Rail where you wish to Drill Hole. Stand on Foot Plate when Drilling. Never Turn the Handles Backward to take Drill Bit Out. Throw Down the Upright Frame and Remove the Hooks from Rail. Pull the Machine Back to take Bit out of Hole, Keep the Screw in the End of Feed Screw Set Up Tight to Insure Easy Work.

‡Goods marked thus (‡) are not carried in stock and can only be furnished by shipment direct from factory.

‡UPRIGHT POST DRILLS.

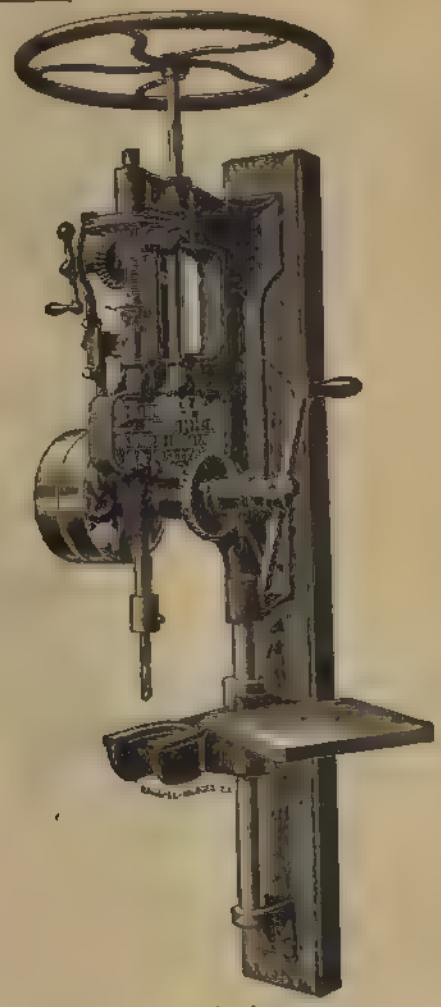


No. 2.

SELF FEEDING.

The swing table, as applied to these machines, will be found useful in many ways, and much more convenient than the old method of driving them in and out with a hammer, thereby running the risk of breaking the foot piece; it is out of the way when not in use, and may be quickly swung into position when wanted; this machine is particularly adapted for power by attaching tight and loose pulleys, or cone pulley, to shaft outside of balance wheel; spindle takes 1/2 inch straight shank drills or 41/64 inch if desired, and can be made to take square or taper shank at special price; has patent automatic stop on feed which prevents breaking of feed connection; drills 0 to 1 1/2 inch hole, and to center of 15 inch circle; length 54 inches; Weight each about 54 lbs.

	Each
No. 2 —Hand Machine	$48.00
No. 2A—With Tight and Loose Pulleys, 8x2 1/4 inches	52.00
No. 2B—With Three Step Cone and Countershaft	73.00



No. 3

SELF FEEDING.

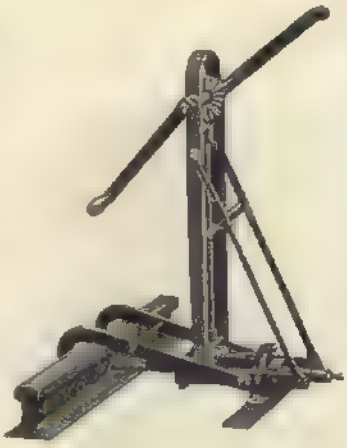
This machine has cut gears so arranged that a quick or slow motion may be given the drill, for light and heavy work, making a desirable tool for machine shop or factory; spindle takes 41/64 inch straight shank drills, or 1/2 inch if desired, and can be made to take square or taper shank at special price; has patent automatic stop on feed, which prevents breaking of feed connection; when used with three step cone pulley has six changes of speed; has mechanical device for raising and lowering table; also wheel on front of machine for hand feed and quick return; hand machine can be converted into power at any time by the addition of pulleys; drills 0 to 1 1/2 inch hole, and to center of 21 inch circle; speed of pulley for ordinary work about 180 turns per minute; length 69 inches; weight each about 325 lbs.

	Each
No. 3 —Hand Machine, without Pulleys	$75.00
No. 3A—With Tight and Loose Pulleys, 10x2 1/2 inches, for Power	79.00
No. 3B—With Three Step Cone and Countershaft	105.00

Packed Loose.

‡Goods marked thus (‡) are not carried in stock and can only be furnished by shipment direct from factory.

"PAULUS" AUTOMATIC FEED TRACK DRILLS



Operator stands in erect position.

Hooks can be thrown back to allow train to pass.

Weight, 60 lbs.
Price $25.00

Price includes one bit or drill.

Extra drills, price.....$ ..

Special pattern Paulus drill for girder rails.
Price $30.00

"NEW STYLE PAULUS" TRACK DRILL

Variable Feed. Ball-Bearing Thrust. Adjustable Handles

Thrown Back to Let Train Pass

Weight, 95 lbs. Price with Rich spindle, chuck and one Rich flat bit $31 25
Price with spindle and one regular twist drill, 25 00
Adjustable handles furnished when specified.

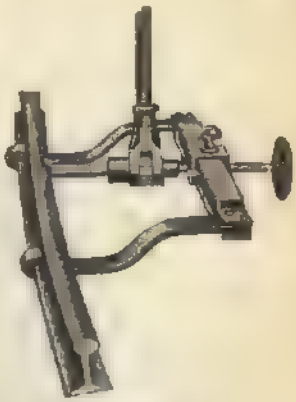
NET PRICES RICH HIGH SPEED FLAT DRILL BITS

For Paulus, Buda, Girder and Harvey Drills with Rich Chuck

Drills ½ to 11/16-inc. require jaws for No. 1 bead.
Drills ¾ to 1¼ inc. require jaws for No. 2 bead.

Size	1/2	17/32	9/16	19/32	5/8	21/32	11/16	23/32
Price	$0.95	95	1.00	1.00	1.05	1.10	1.10	1.15
Size	3/4	25/32	13/16	27/32	7/8	29/32	15/16	31/32
Price	$1.20	1.25	1.30	1.35	1.40	1.45	1.50	1.52
Size	1	1 1/32	1 1/16	1 3/32	1 1/8	1 5/32	1 3/16	1 7/32	1 1/4
Price	$1.55	1.60	1.65	1.70	1.75	1.80	1.85	1.90	1.95

"BELAND" RATCHET RAIL DRILLS



Price complete..$7.50
Drills .....doz. 5.50
Price of ratchet only..... ..... 5.50

SCHUTTLER RAIL DRILL

This drill works continuously, the movement of the lever in either direction causing a continuous and uniform rotation of the drill point in one direction.
Each..... ....$16.00

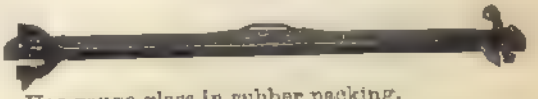
CHANNON-HUNTINGTON TRACK GAUGES

No. 65—Standard gauge 4 ft. 8½ in., weight 140 lbs. to dozen. Price.....dozen, $17 50
No. 67—With guard rail attachment.. " 20.00

No. 70 WOOD TRACK LEVELS

White pine with three coats of paint, bound with steel. Price..... ..... dozen, $20 00

No. 75 COMBINED TRACK GAUGE AND LEVEL



Has gauge glass in rubber packing.
Price..... .....dozen, $35.00

Over-Clutch Pattern

MOORE TRACK DRILL

The Moore Track Drill is made with a detachable upright or standard. The upright is quickly erected and rigidly secured to the frame by the shifting of one lever, and is entirely released by the same lever.

The upright and ratchet can be removed to allow trains to pass and quickly replaced ready to continue drilling *without disturbing the drill*. It cannot become stuck or wedged so as to prevent removal of the standard, but can be separated instantly.

When separated it can be easily carried by one workman, one part in each hand, which is not possible with any other track drill, and it arranges very compactly for storage and transportation.

Drill is equipped with an automatic and variable feed mechanism, which, while a radical departure from others, is very simple. It has a range of feed from one inch to every 50 revolutions of the spindle, to one inch in every 650. This allows the adjustment of the feed to meet the particular requirements of each piece of work which may be done while the drill is in operation.

Over-Clutch Pattern with Upper Parts Detached for Passing Train

No. 1. Weighs 60 lbs., designed for drilling holes 1 inch and smaller, but has sufficient power to drill holes 1¼ and 1½ inches. Price.....**$25.00**

No. 2. Weighs 100 lbs., designed and recommended for continuous heavy work, and will easily drill holes 1¼ and 1½ inches. Price.....**$35.00**

One bit is furnished with each drill. In ordering, be sure to state the exact size bit you require.

THE "CLIMAX" TRACK DRILL

The end of the spindle revolves upon a set of the finest ball bearings in self-contained tool steel racers.

By keying the ratchet wheel to the feed screw another very important end is accomplished, namely—the immediate return of the bit. By simply throwing back the feed bar from engagement with the ratchet wheel, the bit may be either forwarded to or returned from its work *almost instantly* by means of the small crank at the end of the feed screw. In old fashioned drills, it is necessary to twirl the ratchet wheel around slowly with the tips of the fingers in order to return the bit from the rail and when, as often happens, the bit binds in the rail, it is a very difficult matter to return it.

The bevel gears are made of the finest grade of crucible steel. They are of a toughness and density equal to all requirements being made from a steel composed of punchings from boiler plates. The bevel gears have always been the weakest point in any track drill because all manufacturers heretofore used ordinary grey iron. These crucible gears will outlast a dozen sets of the grey iron ones and will, in fact, last as long as the drill.

The track drill is quickly clustered to its work as no blocking up the frame is necessary. One hand grasping the frame, guides the bit which is instantly placed against the rail with the other hand by means of the little "quick-return" crank.

Easily folded out of the way of passing trains.

The "Climax" Feed Device

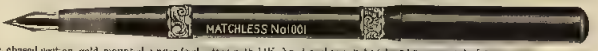
List each..... $25.00

FOUNTAIN PENS—Continued

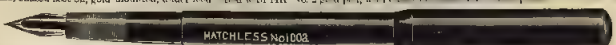
A. C. McCLURG & CO.'S

UNDER FEED

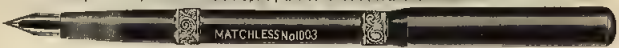
No. 1000 Matchless, plain case, chased section, under feed, fitted with 14K No. 2 gold pen, with coarse fine, medium or stub pen . . . . . Per doz. $16 00



No. 1001 Matchless, plain case, chased section, gold mounted, under feed, fitted with 14K No. 2 gold pen, with coarse fine, medium or stub pen . . . . . Per doz. $24 00



No. 1002 Matchless, plain case, chased section, under feed, fitted with 14K No. 4 gold pen, with coarse fine, medium or stub pen . . . . . Per doz. $20 00



No. 1003 Matchless, plain case, chased section, gold mounted, under feed, fitted with 14K No. 4 gold pen, with coarse fine, medium or stub pen . . . . . Per doz. $33 60

1004 Same as No. 1002, fitted with 14K No. 6 gold pen, extra large sized barrel 36 00

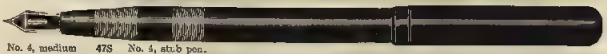
PAUL E. WIRT'S

Each pen fitted with a newly patented underfeed, and 14 karat gold pen

No. BF No. 1, fine BM No. 1, medium BS No. 1, stub pen . . . . . Per doz. $19 20

40F No. 2, fine 40M No. 2, medium 40S No. 2, stub pen 25 60

No. 41F No. 3, fine 41M No. 3, medium 41S No. 3, stub pen . . . . . Per doz. $33 60



No. 47F No. 4, fine 47M No. 4, medium 47S No. 4, stub pen. . . . . Per doz. $40 00

No. 51F No. 5, fine 51M No. 5, medium 51S No. 5, stub pen . . . . . Per doz. $54 00

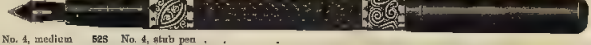
No. 55F No. 3, fine 55M No. 3, medium 55S No. 3, stub pen. . . . . Per doz. $33 60

No. 55AF No. 2, fine 55AM No. 2, medium 55AS No. 2, stub pen . . . . . Per doz. $25 60

No. BXF No. 1, fine BXM No. 1, medium BXS No. 1, stub pen . . . . . Per doz. $33 60

No. 43F No. 2, fine 43M No. 2, medium 43S No. 2, stub pen . . . . . Per doz. $40 00

No. 42F No. 3, fine 42M No. 3, medium. 42S No. 3, stub pen. . . . . Per doz. $47 00



No. 52F No. 4, fine 52M No. 4, medium 52S No. 4, stub pen . . . . . Per doz. $54 00

No. Fitted with screw cap over gold pen which makes it non-leakable. Can be carried in pocket in any position. Very Popular. Per doz.

2002 No. 2, fine; 2002 medium; 2002 stub pen $32 60

2003 No. 3, fine; 2003 medium; 2003 stub pen 42 00

No. 2004 No. 4, fine 2004 medium 2004 stub pen. . . . . Per doz. $54 00

ASSORTMENTS

Oak framed, easel back display box, glass front and back

No. 4, Containing

3 No. B	2 No. BX	2 No. 40
1 No. 43	2 No. 41	1 No. 42
1 No. 47		

Per case of 1 dozen assorted. $38 86

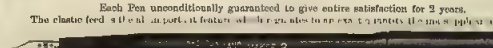
JOHN HOLLAND PATENT ELASTIC FEED FOUNTAIN PEN

(Patented July 1, 1902.)

Action of feed and pen in use

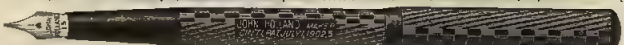
Each Pen unconditionally guaranteed to give entire satisfaction for 2 years.
The elastic feed will deal an important feature of large value to anyone using fountain pens, as applied to the pen

Back view of feed.

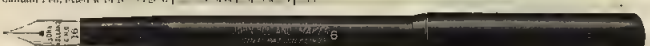


Cat. No.		Each
142	John Holland Fountain Pen, fitted with No. 12 gold pen, fine, medium or stub point	$2 08
143	John Holland Fountain Pen, fitted with No. 13 gold pen, fine, medium or stub point	$2 60

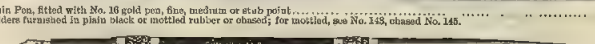
144 John Holland Fountain Pen, fitted with No. 14 gold pen, fine, medium or stub point $3 12



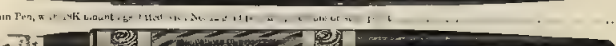
145 John Holland Fountain Pen, fitted with No. 15 gold pen, fine, medium or stub point $3 64



146 John Holland Fountain Pen, fitted with No. 16 gold pen, fine, medium or stub point $4 16
Any of the above holders furnished in plain black or mottled rubber or chased; for mottled, see No. 143, chased No. 145.



152 John Holland Fountain Pen, with 18K mountings, fitted with No. 12 gold pen, fine, medium or stub point $3 12



154 John Holland Fountain Pen, with 18K mountings, fitted with No. 13 gold pen, fine, medium or stub point $4 16

162	John Holland Fountain Pen, with 18K mountings, fitted with No. 12 gold pen, fine, medium or stub point			$3 12
163	" " " 18K " " No. 13 " " " " " "			3 64
164	" " " 18K " " No. 14 " " " " " "			4 16

No. 25

Assortment No. 25

Size 13½ inches wide by 10 inches high by 2 inches deep, antique oak or cherry frame easel back.

2 No. 2 John Holland Fountain Pens	$4 16	
1 No. 3 " " " "	10 40	
4 No. 4 " " " "	12 48	
2 No. 5 " " " "	7 28	
12		$34 32

Assortment No. 24

15 inches wide by 10 inches deep and 6 inches high. Antique oak stock, compartment for boxes, etc., with lock and key

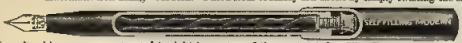
4 No. 2 John Holland Fountain Pens	$8 32	
8 No. 3 " " " "	20 80	
8 No. 4 " " " "	24 48	
4 No. 5 " " " "	14 56	
24		$68 26

No. 24

Popular Assortment

THE A. A. WATERMAN & COMPANY'S FOUNTAIN PENS

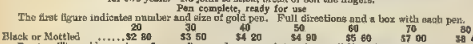
Fitted with fully warranted 14K. gold pens
Automatic Self-filling—Modern. Filled from ordinary ink bottle by simply twisting the end of the holder



The soft rubber reservoir is twisted to right to empty and then untwisted to fill. Reservoir guaranteed for two years. No joint to stick, break or soil the fingers.
Pen complete, ready for use
The first figure indicates number and size of gold pen. Full directions and a box with each pen.

	20	30	40	50	60	70	80
Black or Mottled	$2 80	$3 50	$4 20	$4 90	$5 60	$7 00	$8 40

Points. The gold pens have fine, medium and coarse points, also in all Nos. above 2, stub points.

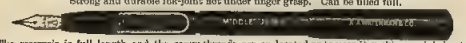


Gold Mounted

For any of the self-filling pens listed above, mounted with one rolled gold plate band, at $1.40 extra, add "G. M." to the No. For extra wide band, at $2.10 extra, add "W. G. M." to the No.

Improved Middle Joint—Modern

Strong and durable ink-joint not under finger grasp. Can be filled full.



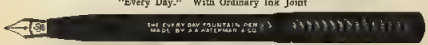
The reservoir is full length and the screw threads are so located as to permit making an ink-joint of unusual strength and reliability
Prices and numbers of complete pens. The first figure indicates size of gold pen. A box, filler and full directions with each pen.

	22	32	42	52	62	72	82
Black or Mottled	$2 80	$3 50	$4 20	$4 90	$5 60	$7 00	$8 40

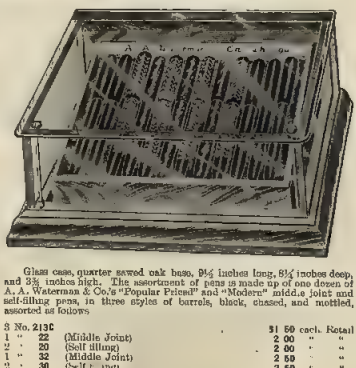
Middle Joint "Modern" Gold Mounted

For any of the middle joint pens listed above, mounted with one rolled gold plate band, at $1.40 extra, add "G. M." to the No. For extra wide band, at $2.10 extra, add "W. G. M." to the No.

"Every Day." With Ordinary Ink Joint



Made in the regular style of holder only, full chased (as in cut) Per doz.
No. 213 with large No. 2 gold pen, fine point; No. 213 medium point; No. 213 coarse point..... $24 20
No. 413 with No. 4 gold pen, fine point; No. 413 medium point; No. 413 coarse or stub point..... 38 00



Glass case, quarter sawed oak base, 9½ inches long, 8½ inches deep, and 3¾ inches high. The assortment of pens is made up of one dozen of A. A. Waterman & Co.'s "Popular Friend" and "Modern" middle joint and self-filling pens, in three styles of barrels, black, chased, and mottled, assorted as follows

3 No. 213C		$1 50 each.	Retail
1 " 22	(Middle Joint)	2 00 "	"
2 " 20	(Self filling)	2 00 "	"
1 " 32	(Middle Joint)	2 50 "	"
2 " 30	(Self filling)	2 50 "	"
2 " 42	(Self-filling)	3 00 "	"
1 " 20GM	(Self-filling)	3 00 "	"
	Price per case,	$37 66	

WAGONS.

CYCLONE.

Per Dozen

No. 33—Combined Wagon and Velocipede; Sheet Steel Body 14x32 inches, Painted and Lettered Steel Wheels 12 and 18 inches; Front Wheels turn under, Malleable Gearing, suitable for children from 3 to 12 years of age. Weight per dozen about 348 lbs. $96.00

One-quarter Dozen in a Crate.

AUTOMOBILE WAGONS.

COLUMBIA.

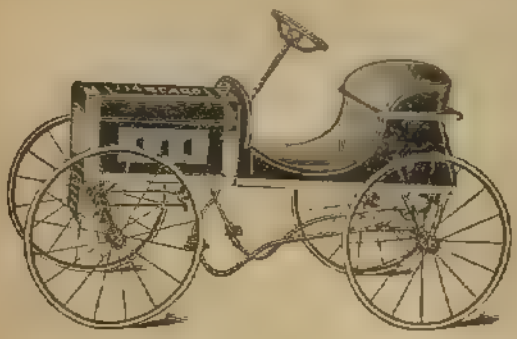
Per Dozen

No. 402R—Sheet Steel Body, 15x36 inches; Painted Red Outside and Green Inside; Nicely Stenciled and Striped; Steel Axles; Wrought Steel Gearing, Black Japanned; Rubber Tired Wheels 12 and 18 inches; Weight per dozen about 530 lbs. $96.00

MORS.

Per Dozen

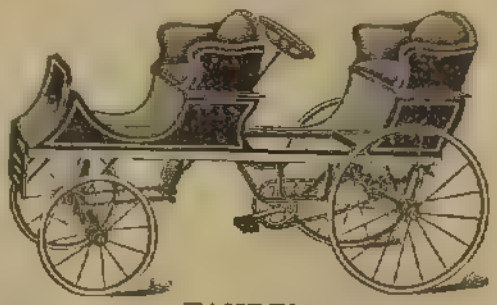
No. 401R—Sheet Steel Body, 14x34 inches; Painted Red Outside and Green Inside; Nicely Striped and Decorated; Steel Axles; Wrought Steel Gearing, Green Japanned; Nicely Tinned and Rubber Tired Wheels, 12 and 18 inches; Weight per dozen about 410 lbs. $84.00



STANDARD.

Per Dozen

No. 403R—Sheet Steel Body 16x42 inches; Finished in Red, Striped in Gold; Polished Brass Trimmings; 18 inch Front and Rear Wheels, Green Enameled, with ⅝ inch Rubber Tires, Brass Plated Axle Nuts, Wrought Steel Gears, Enameled Green; Metal Air Cooler, Enameled Black; Weight per dozen about 850 lbs. $138.00



TANDEM.

Per Dozen

No. 404R—Sheet Steel Body 16x45 inches; Finished in Red, with Gold Bronze Striping; Wood Seats, Upholstered in Green Corduroy; Wrought Steel Gears, Green Enameled; Chain and Sprocket Drive, Best Quality High Grade Bicycle Chain, with Bicycle Sprockets; Crank Axle is Mounted on Heavy Steel Frame; High Grade Genuine Ball Bearing Crank Axle; Side Steps; Apron and License Tag; Green Enameled and Rubber Tired 12 and 18 inch Wheels; Weight per dozen about 854 lbs. $216.00

One-twelfth Dozen in a Crate.

WAGONS.

POLICE PATROL

Per Dozen

No. 1P—SIZE OF BED 20½x37x8½ INCHES. Bed and Seat made of Sheet Steel, Painted and Lettered, Steel Axles, Malleable Iron, Tinted, Cushion Seats, Brass Gong; Brass Rods and Turned Knobs, Steel Wheels 14 and 20 inch. Weight per dozen about 900 lbs. $170.00

No. 2P—Same as No. 1P, except. SIZE OF BED 15x30x7¾ INCHES; Wheels 12 and 18 inches, Weight per dozen about 552 lbs. .. 108.00

One-twelfth Dozen in a Crate.

OVERLAND COASTER

Per Dozen

No. 0A Hardwood Gear, Real Axle Stubs, Braced; 1½x2 inch Rock Maple Axles; Steel Hounds, Hardwood Wheels, with Extension Rims and ¾ inch Strip Tire, White Ash Bent Bolsters, with Red Varnished Seats, Express Box, Round Metal Handle, Bent Hounds, Spring Mechanism which operates equally well with Express Box or Coaster Bob; Equipped with Handle Brace, Natural Wood Finish, Varnished, with Red Trimmings; Size of Bottom 11x30 inches, Diameter of Wheels 8 inches; Weight per dozen about 120 lbs. $26.00

One-sixth Dozen in a Crate, Knocked Down.

Showing Wagon with Box.

Showing Wagon Converted into a Coaster Bob, with Wagon Box removed.

OVERLAND COASTER

Steel Gear, Channel Steel Arch Construction; Front and Rear Axles Strongly Braced, ½ Inch Round Steel Axles, Malleable Iron Hounds, Strong Malleable Lift Wheel, Hardwood Wheels with Heavy Steel Tires, Malleable Iron Ferules and Tires, and [illegible] Steel Spokes, White Ash Bent Bolsters, Hardwood Seats, Steel Bolster Type Express Box, Round Metal Handle, Bent Hounds, Spring Mechanism which operates equally well with Express Box or Coaster Bob; Equipped with Hand Brake, Natural Wood Finish, Varnished with Red Trimmings; Coaster Bob Runners are not included with Wagons.

Nos. 1A, 2A, 3A and 5A Equipped with Hand Brake.

No. 1A Equipped with Steel Gear, Front and Hand Brake, Natural Wood Finish, Varnished with Red Trimmings; Coaster Bob Runners are not included with Wagons.

Nos.	1A	2A	3A	4A	5A
Size of Bottom, inches	14¼x36	14¼x36	16¼x40	16¼x40	18¼x44
Diameter of Wheels, inches	8	11	11	11	11
Weight per dozen about, lbs.	330	403	468	516	49[illegible]
Per dozen	$54.00	69.00	78.00	86.00	86.00

One-sixth Dozen in a Crate; Knocked Down.

Per Dozen Sets

Sled Runners for Overland Coaster Wagons: Painted Blue. Made of Round Back Angle Steel, which gives them a Great Speed. The Front and Rear Runners Overlap, [illegible] along over uneven ground smoothly. The knees are constructed according to a bridge truss principle which makes them very strong. Weight per dozen sets about 72 lbs. $24.00

Seats for Overland Coaster Wagons: Made of White Ash, Varnished. Front Seat without Back Rest, Rear Seat with Back Rest.

For Wagon Nos.	0A	1A	2A	3A	4A	5A
Front Seat	Each, $1.00	1.00	1.00	1.00	1.00	1.00
Rear Seat	Each, $2.00	2.00	2.00	2.00	2.00	2.00

Weight Each about 4 lbs.

Each

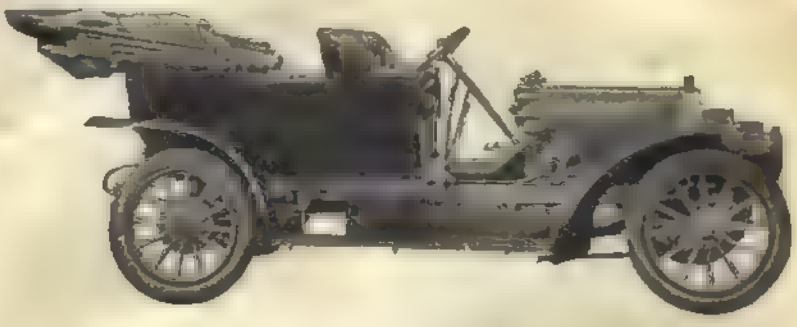
Shafts for Overland Coaster Wagons: Hard Maple, Varnished, with Red Trimmings. Will fit any Size Overland Coaster Wagon; Weight each about 5 lbs. ... $2.00

Packed Loose

PENNSYLVANIA

The New Type D "25"
1909 Model

is the smartest, most dependable, most efficient small car built in America



TYPE D "25" (A. L. A. M. Rating, 29)

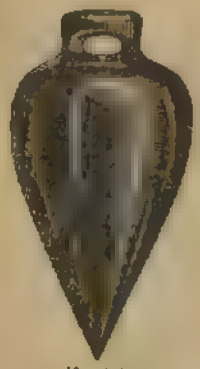
Runabout, $2000 Baby Tonneau or Touring Car, $2100

A duplicate in all but size and power of the great Pennsylvania "50," the record maker of 1908; the same type motor, a new rear axle transmission unit, upswept frame, powerful brakes, a front axle and steering system never before seen in a car of this weight and size, very large ball bearings, nickel steel frame, motor to wheels, straight line drive, motor extremely silent.

Type C "50"	Unchanged—a model universally endorsed and effectively proved by its consistent winnings in all racing events for endurance, hill climbing and speed during 1908. Price, $3000, including Bosch Magneto.

PENNSYLVANIA AUTO MOTOR CO.
BRYN MAWR, PA.

PLUMB BOBS.



No. 100.

No. 23.

Iron, Black Japanned; Adjusted Top.
S. H. CO.*

Nos.	100	200	300	400
Weight each, lbs	1	2	3	4
Per dozen	$3 00	5.50	8.00	12 00

One-half Dozen in a Wood Box.

Iron, Black Japanned; Adjusted Top.

Per Dozen
No. 23—Weight each 9½ ozs. $1 20

One Dozen in a Paper Box.

No. 34.

No. 001.

Lead; Natural Color Polished Steel Point.

Per Dozen
No. 34—Weight each 12 ozs. $3.75

One-half Dozen in a Paper Box.

Iron, Black Japanned; Adjusted Top.

Per Dozen
No. 001—Weight each 1 lb. 2 ozs. $2.25

Packed Loose.

Polished Cast Brass, Hardened Steel Point; Adjusted Screw Top.

Per Dozen
No. 56—Weight each 6 ounces $5.45
No. 67—Weight each 11½ ounces 7.50

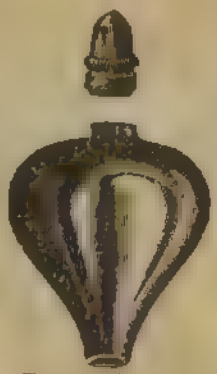
One-half Dozen in a Paper Box.

PERFECTION.

POLISHED AND LACQUERED BRASS CASE, filled with Lead; Hardened Steel Point, which is a part of Steel Rod passing through body to which Adjusted Screw Top is attached. The Rim or Bead around the Bob is to protect it from bruising or disfigurement from contact with other bodies or rough surfaces.

Nos.	110	120	130	140	150
Weight each, ozs.	8	14	24	36	56
Per dozen	$9.00	12.00	15.00	18.00	24.00

One-twelfth Dozen in a Solid Wood Box with Screw Cover, fitted to its size, with Cord attached



Showing Bob Apart

Polished Cast Bronze Metal; Reversible Hardened Steel Center Pin, with Adjusted Bronze Screw Top.

No. 20R.

Weight, each	12 ozs.	1 lb.	2 lbs.	3 lbs.	4 lbs.	5 lbs.
Per dozen	$28.75	34.50	56.50	72.00	86.50	102.00

One-twelfth Dozen in a Wood Box

Cast Iron, Nickel Plated and Polished; Adjusted Top.

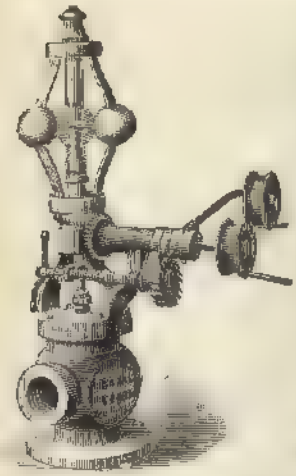
Per Dozen
No. 11—Weight each 5½ ounces $18 00
No. 12—Weight each 12 ounces 24 00

One Dozen in a Paper Box.

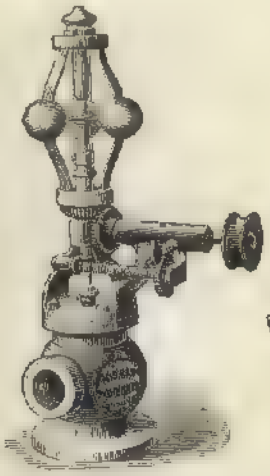
ENGINE GOVERNORS

PICKERING SPRING GOVERNORS

CLASS A

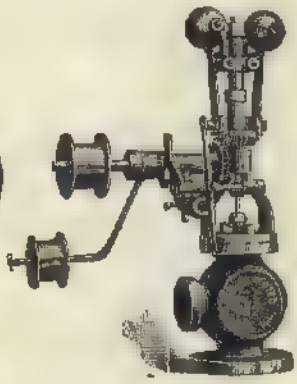


CLASS B

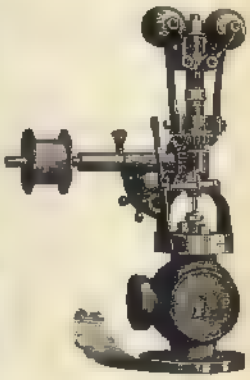


GARDNER GOVERNORS

CLASS A



CLASS B



The Pickering and Gardner Governors take the same list prices as shown below

The Pickering are made in the spring only, and makes shown can be furnished with either straight way or angle valve chamber and with or without speeder.

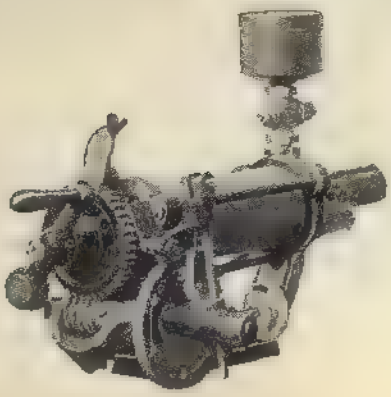
Speeder is Extra

Size.....inches	½	¾	1	1¼	1½	2	2¼	2½	3	3½	4	4½	5	6
Class B, Plain. .... each	$14.00	16 00	18 00	21 00	25.00	30 00	35.00	40.00	50 00	60 00	71 00	83 00	94.00	122 00
" B, Finished .. "	16.00	18 00	20.00	24 00	29 00	34 00	40.00	45 00	58 00	69 00	81 00	94 00	106.00	136 00
" A, Plain ... "	16.50	18 50	21 00	24 50	29 50	36 00	42.00	48 00	59 00	71 00	83 00	96 00	109.00	140.00
" A, Finished... "	18 50	20 50	23 00	27 50	33 50	40 00	47.00	53 00	67 00	80 00	93.00	107 00	121.00	154.00

Class B is without Automatic Stop and Class A with Automatic Stop.

HANSON FORCE FEED LUBRICATOR

Capacity One and One-half Pints



Operated mechanically from any moving part upon the engine (valve motion usually the most convenient). Positive in action under all conditions of weather and any kind of oil. Stops and starts with engine. When supply of lubricant is exhausted automatically disconnects and starts alarm bell. First-class workmanship and material in every particular. Body made of brass. Piston packed with spiral packing. All gears and ratchets are cut, insuring accuracy and long life. All parts interchangeable.

Price with alarm bell.. . ... $13.00

AIR COCKS

T Handle Single Thread

Fig. 50

T Handle Double Thread

Fig. 54

Lever Handle Single Thread

Fig. 53

Lever Handle Double Thread

Fig. 55

T Handle Bibb Nose

Fig 58

Lever Handle Bibb Nose

Fig 59

Size, inches.	⅜	½	¾	1
Fig 50 Each	$0 40	$0 45	$0 55	$0 60
Fig 54. Each	55	65	75	90
Fig 53 Each	55	60	65	75
Fig 55 Each	70	80	90	1 05
Fig 58 Each	70	80	90	1 00
Fig 59 Each	85	95	1 05	1 15

STEAM GAUGE COCKS

T Handle Female

Fig 80

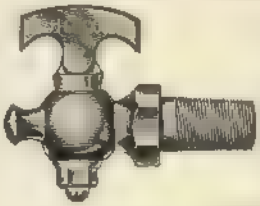
Lever Handle With Union

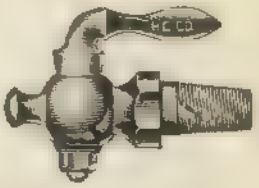
Fig 81

Size inches	½	¾
Fig 80 Each finished		$0 75
Fig 81 Each	$1 50	1 65

CYLINDER COCKS

Tee Handle Long Shank Lever Handle





PRICE EACH

Size Pipe Thread, in.	¼	⅜	½	¾
Tee Handle, Long Shank	$0 70	$0 80	$0.90	$1.20
Lever " Long Shank	.85	.95	1.05	1 35

COMPRESSION GAUGE COCKS

No. 1 Without Stuffing Box

No. 2 With Stuffing Box

Size inches	⅜	½	¾
No. 1 Without Stuffing Box	$0 95	$1 00	$1 25
No 2 With Stuffing Box	1 20	1 30	1 45

WEIGHTED GAUGE COCKS

"Regester Pattern"

Size, inches	⅜	½	¾
With Iron Ball, each	$1.00	$1.00	$1.00

STEAM GAUGE SYPHONS

Fig C48

Fig C49

Fig C51

Fig C50

Fig. C52

Figure	C48	C49	C51	C50	C52, Brass
Price Each	$1 00	$1 25	$1 00	$1 50	$1 00

COTTON GLOVES.

No. 38.

No. 229.

No. 190.

Standard Weight Canton Flannel; Full Size; Nap Inside; Special Selvage Edge Tape Wrist Band; Reinforced with Heavy Brown Split Mule-Skin.

Per Dozen Pairs

No. 38—10 OUNCE White Flannel; Fingers, Thumb and Palm Faced with Mule Skin; Tinned Stamped Steel Concave Husking Pin 4⅝ inches Long, Riveted on Right Hand Glove; Weight per dozen pairs about 4½ lbs. $6.00

No. 229—8 OUNCE Gray Flannel; Tips of Fingers and Thumb Faced with Mule-Skin; Weight per dozen pairs about 2 lbs. 3.50

No. 190—10 OUNCE White Flannel; Fingers, Thumb and Palm Faced with Mule-Skin; Weight per dozen about 3½ lbs. 5.00

No. 150X.

No. 147.

Gauntlet Pattern; With Wide Flaring Cuff; Made of Standard Weight Cloth.

Per Dozen Pairs

No. 150—8 OUNCE White Canton Flannel; Full Size; Nap Inside; Heavy Duck Cuff. $3.50

No. 153—10 OUNCE White Canton Flannel; Full Size; Nap Inside; Heavy Duck Cuff. 3.75

No. 150B—8 OUNCE Gray Husking Cloth; Boy's Size; Nap Inside, Heavy Duck Cuff. 3.00

No. 147—10 OUNCE White Canton Flannel; Full Size; Nap Inside; Extra Heavy Lined and Stitched Duck Cuff. 4.25

No. 150X—8 OUNCE Gray Husking Cloth; Full Size; Cuff of same Material. 3.25

Weight per Dozen Pairs about 2¾ lbs.

One Dozen Pairs in a Carton.

FODDER SQUEEZERS.

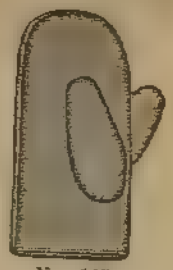
Japanned Malleable Iron Frame, Lock and Sheave; Point 3 inches Long; Sheave 1¾ inches in Diameter; Length over all 7½ inches.

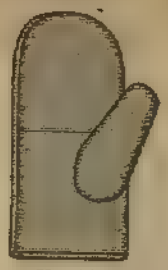
Per Dozen

No. 1—BLAIR'S; Without Rope; Weight per dozen about 6¾ lbs. $4.00

One-half Dozen in a Cardboard Box

COTTON MITTENS.


No. 145.


No. 70.

Standard Weight Canton Flannel; With Hemmed Wrist; Nap Outside.

Per Dozen Pairs

No. 75—6 OUNCE Plain White; Full Size. $1.60

No. 218—8 OUNCE Plain White; Full Size. 2.00

No. 76—10 OUNCE Plain White; Full Size. 2.40

No. 78—12 OUNCE Plain White; Full Size. 2.80

No. 218B—8 OUNCE Plain White; Boys' Size. 1.60

No. 71—6 OUNCE; Double Palm and Thumb; White, Full Size. 2.00

No. 70—8 OUNCE. Double Palm and Thumb; White, Full Size. 2.40

No. 10—10 OUNCE, Double Palm and Thumb, White, Full Size. 2.80

No. 144—8 OUNCE Reversible; White, Full Size, with Two Thumbs. 2.75

No. 145—10 OUNCE. Reversible; White; Full Size with Two Thumbs. 2.80

No. 148—8 OUNCE; Reversible Full Size; with Double Top, Both Front and Back, with Two Thumbs. 3.20

No. 216—8 OUNCE Waterproof; Brown; Full Size, with Nap Inside. 3.00

Weight per Dozen Pairs about 2 lbs

No. 181

Cotton Ticking; Assorted Colors; Canton Flannel Lining.

No. 520.

Per Dozen Pairs

No. 181—MEDIUM Ticking; Lined Only. $2.40

No. 185—MEDIUM Ticking; Heavily Padded and Quilted. 3.00

No. 520—SELECT Ticking; Heavily Padded and Quilted; Knit Cotton Wrist. 3.75

No. 510—Fancy Sateen Ticking; Extra Heavily Padded and Quilted. 4.00

Weight per Dozen Pairs about 4 lbs.

One Dozen Pairs in a Carton.

PINE TAR.

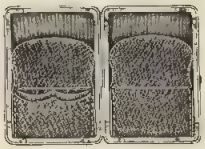
Pine Tar; For use on Husking Gloves; Put up in Sealed Top Cans.

Per Case

No. 511PW—1 Pint Cans; Weight per case about 55 lbs. $5.50

Four Dozen in a Case.

CIGAR CASES—Continued



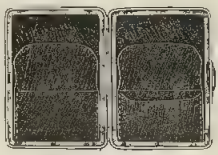
No. 647 Fine morocco, assorted colors, extra fine nickel-plated riveted frame, leather lining, large morocco flaps, with 2 extra pockets, size 3½x5½, each in box Per doz. $44 00

No. 648 Genuine seal, fully covered frame, fine leather lining, 2 large flaps with 3 extra pockets, size 4x5½, each in box Per doz. 44 00

No. 640

No. 639 Genuine seal, fine nickel-plated riveted frame, fine leather lining, large flaps size 4x5½, each in box Per doz. $48 00

No. 640 Fine polished calf, assorted colors, fully leather covered frame, extra fine quality leather lining, large flaps to match, metal ornaments on front, size 4x5½, each in box Per doz. 66 00



No. 641 Fine quality genuine pin seal, finely nickel-plated, new style frame, riveted, leather lining, large fine calf flaps, with 1 extra pocket, size 4x5½, each in box Per doz. $78 00

TOBACCO POUCHES AND BOXES

No. 9071 Fancy rubber cloth, sateen top, drawstrings, size 4x5, 2 dozen in box Per doz. $1 50

No. 9151 Fancy rubber cloth, sateen top, drawstrings, size 4x6½ Per doz. $3 00

No. 15 Fancy rubber cloth pressed nickel ball catch frame, size 3x3 Per doz. $4 00

No. 4029 Light leather with Indian head design drawstring Per doz. $4 00

No. 4030 Same as No. 4029, tan leather 4 00

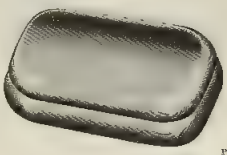
No. 16 Fancy rubber cloth pressed nickel ball catch frame, size 5¾x7 Per doz. $8 00

SELF-CLOSING

No. 1 Self-closing, made of pure rubber, warranted to keep in any climate, diameter when closed 3¾ inches Per doz. $3 00

12 Same as No. 1, diameter when closed 4 inches 4 00

METAL



No. 14 Metal, nickel-plated, hinged cover, size 4x3¾ Per doz. $3 00

POCKET MATCH SAFES

3 per cent extra discount allowed when full boxes are ordered. Each 12 in box

METAL

No. 373

No. 362

No. 375 Nickel-plated, designs on back and front, size 1¾x2¾ Per doz. $0 80

No. 362 Nickeled, gilt and silver finishes assorted, embossed designs of U. S. flag and U. S. shield, size 1½x2½ 1 34

No. 370

No. 368

No. 370 Nickel-plated, three assorted embossed designs, size 1½x2¾ Per doz. $3 40

No. 368 Nickel-plated ends, leather covered center, with novelty cigar cutter attachment, size 1⅞x2⅜ 3 80

No. 384

No. 385

No. 384 Nickel-plated ends and sides, center in pearl effect, design in relief on both sides, size 1½x2¾ Per doz. $3 50

No. 385 Nickel-plated, handsome gray finish, handsome design in relief on each side, patent slide opening at both ends, size 1¾x2¾ 4 00

No. 387

No. 388

No. 387 Metal, nickel-plated, Teddy Bear design size 1½x2¾ Per doz. $4 00

No. 388 Metal, nickel-plated, opens at either end, size 1½x2¾ 5 00

No. 367

No. 376

No. 367 Silver-plated, with enameled design of U. S. flag in colors, size 1½x2½ Per doz. $1 70

No. 376 Nickel-plated, center in pearl effect, embossed top, size 1½x2¾ Per doz. $3 50

No. 378 Nickel-plated with scratcher for lighting Swedish matches, size 1⅞x2⅜, each in box Per doz. $6 00

No. 383 Society, nickel-plated, both sides in relief, handsome finish, assorted emblems Masonic, Foresters, Knights of Pythias, Elks, Knights of Columbus, Woodmen, Royal Arcanum, American Mechanics, Eagles, Red Men, and Odd Fellows 2 each in package, size 1½x2¾ Per doz. $4 00

CIGAR CASES

No. 531 Aluminum, combined satin and English finish, for 1 cigar, 1 dozen in package — Per doz. $1 60

No. 532

No. 532 Aluminum, satin finish, hinged case with clasp, for three cigars, 1 dozen in package — Per doz. $2 00

534 Same as No. 532 Finished in assorted colors, 1 dozen in package — 3 00

TELESCOPE SHAPE

No. 548

No. 550

Each 1 dozen in package — Per doz.

548 Imitation pigskin leather, embossed design on front — $4 00

549 Same as No. 548 fine Russia calf — 8 50

550 Russia calf hand stitched and leather lined, edges — 12 00

551 Same as No. 550 genuine seal — 16 00

552 No. 550 alligator — 19 00

No. 628

No. 489

No. 626 Oblong shape, dice grained cowhide leather, blocked and stitched edges, outside flap, size 3½x4¾, ½ dozen in package — $9 00

489 Leatherette, nickel-plated frame with shield ornament, size 3½x4¾ — 2 40

No. 625

No. 627

No. 625 Leatheroid, horn back alligator pressing, moire lining, nickeled frame, size 3¼x5¾, ½ dozen in package — Per doz. $8 00

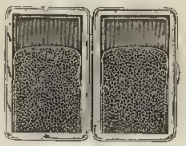
627 Keratol buffalo grain nickeled frame, with ornaments on front, size 3¾x4¾, ½ dozen in package — 8 00

No. 628

No. 629

No. 628 Leatheroid, hornback alligator pressing, moire lining, metal corner ornaments, nickeled frame, size 3¼x5¾, ½ dozen in package — Per doz. $12 00

642 Keratol alligator pressing, partially covered frame, size 3¼x5¾, ½ dozen in package — 12 00

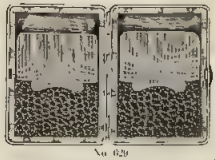


No. 617

No. 617 Cross grained leather, assorted colors, partially covered riveted frame, size 3¼x5¾, ½ dozen in package — Per doz. $15 00

643 Goat seal, leather covered frame, leather lining, large flaps, size 3¼x5¾, each in box — 24 00

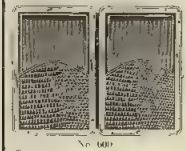
644 Same as No. 643 alligator pressing, each in box — 24 00



No. 629

No. 629 Kerstol, morocco grain, nickeled riveted frame, fancy moire flaps, size 4x6½, ½ dozen in package — Per doz. $15 00

618 Diamond design leather with one pocket on front, large flaps, size 3¼x5½, ½ dozen in package — 16 00



No. 600

No. 601

No. 600 Genuine leatherette, nickeled frame, size 3¾x5, ½ dozen in package — Per doz. $8 00

601 Same as No. 600, size 3½x5½, ½ dozen in package — 12 00

613 Seal, hot grained leatherette, fancy design on front, nickeled riveted frame, size 3¼x5, ½ dozen in package — 8 00

No. 630

No. 631

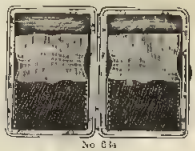
No. 630 Leather, alligator grain, fine nickeled frame, large flap, imitation leather lining, size 3¾x5, ½ dozen in package — Per doz. $16 00

631 Cross leather, fine nickeled plated frame, silk lining, nickel ornaments on front, size 4x5, ½ dozen in package — 18 00

No. 632

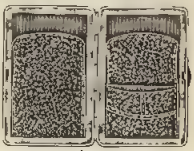
No. 632 Genuine seal grain, partially covered nickeled frame, fitted with cigar cutter, size 3½x5¼, each in box — Per doz. $21 00

633 Leather lizard grain, fine nickeled plated frame with new style catch, large flaps, moire lining, size 4x5½, each in box — 24 00



No. 634

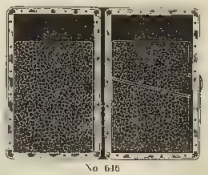
No. 634 Genuine calf, nickel plated, nickel plated riveted frame, fancy flaps, moire lining, size 3¼x5, each in box — Per doz. $24 00



No. 645

No. 645 Morocco, assorted colors, nickel-plated, riveted frame, leather lining, large flaps, with 3 small pockets, size 3¼x5¼, each in box — Per doz. $32 00

638 Highly polished calf, fine nickel-plated frame, leather lining, large flaps with 2 extra pockets, size 3¼x5¼, each in box — 42 00

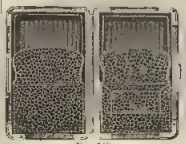


No. 646

No. 646 Cross grained, highly polished leather, assorted colors, nickel plated riveted frame, leather lining, large flaps, size 4x5½, each in box — Per doz. $33 00

636 Morocco leather partially covered nickel plated riveted frame, leather lining, large flaps, size 4x5½, each in box — 36 00

635 Genuine alligator, fine nickel plated riveted frame, leather lining, genuine alligator flap, size 4x5½, each in box — 36 00



No. 623

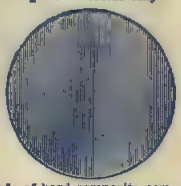
No. 623 Genuine seal, partially covered riveted frame, fine leather lining, large seal flaps with pockets, size 3¼x5½, each in box — Per doz. $42 00

637 Goat seal with 2 extra pockets on outside, fine nickel plated riveted frame, leather lining, large flaps to match, size 4x5½, each in box — 42 00

Poker Chips, Playing Cards and Cash Checks.

These goods are as staple as gold coin and we are below underselling level in price.

Plain Poker Chips, sold in assorted colors only

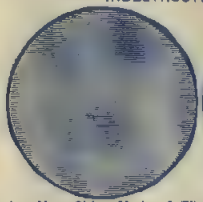


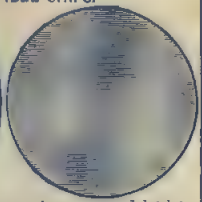
Plain Poker Chips, are made of hard composite compressed by hydraulic machine, polished smoothly, are as beautiful as enamel. These are light, neat and very cheap, quality considered.

We are headquarters on this line of goods and are supplying many wholesale dealers; equal to fine celluloid goods, packed 100 in box, assorted, 50 white, 25 blue, 25 red.

No.	Size.	Per M.	Per Box.
5911.	1¼ in.	3.25	.32
5912.	1⅜ in.	3.40	.35
5913.	1½ in.	3.60	.37

INDESTRUCTIBLE CHIPS.





New Chips Made of Fibre pulp compressed by hydraulic press into a dense, firm and extremely strong composition that will not break and is light and noiseless, 50 white, 25 blue and 25 red in box of 100; 1½ in. size only. Nicely finished.

Per M . . . . . 3.50 Per C. 36

As above in solid colors, 100 in box, colors mentioned below each separately.

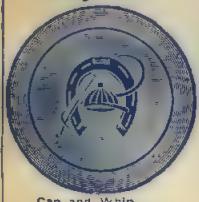
Color.	Per M.	Per 100
Red	3.50	.36
White	3.50	.36
Blue	3.50	.36
Yellow	3.50	.36

Fine Engraved Poker Chips.

Sold in assorted colors in boxionly.

Rough Rider

Flush Hand



Cap and Whip

Crown

The Eagle

Clear Cut, engraved in the most popular designs, high grade celluloid composite, enameled finish, 100 in box, assorted, 50 white, 25 blue, 25 red, all in same size, 1½ inch across.

No	Kind.	Per Box.
5914	Rough Rider...	.50
5915	Flush Hand....	.50
5916	Cap and Whip..	.50
5917	Crown	.50
5918	Eagle	.50

Playing Cards. Staple Sellers.

No. 24. The "Little Duke" Playing Card is ¼ size of the regular playing card, fine enameled stock, assorted backs and high color fronts plain indicators, used extensively for slot machines

Dozen ..... .75

No. 43. Cadet Playing Cards. One of our special numbers, an exceptional value in a card, new fancy backs, elegant slip, fine finish, good clear print, half size of regular cards.

Dozen ..... .75

No. 900. Steamboats. The old, reliable selling card, in quality and finish now better than ever. Very staple seller. Assortment of favorite calico and plaid designs in improved colors and finish

Dozen ..... .70

No. 808. Bicycle Playing Cards. This card has been in the market for so many years that every dealer in the land knows it. For quality, slip and finish, it has few equals. Fine assorted designs, super enameled.

Per Dozen 2.00

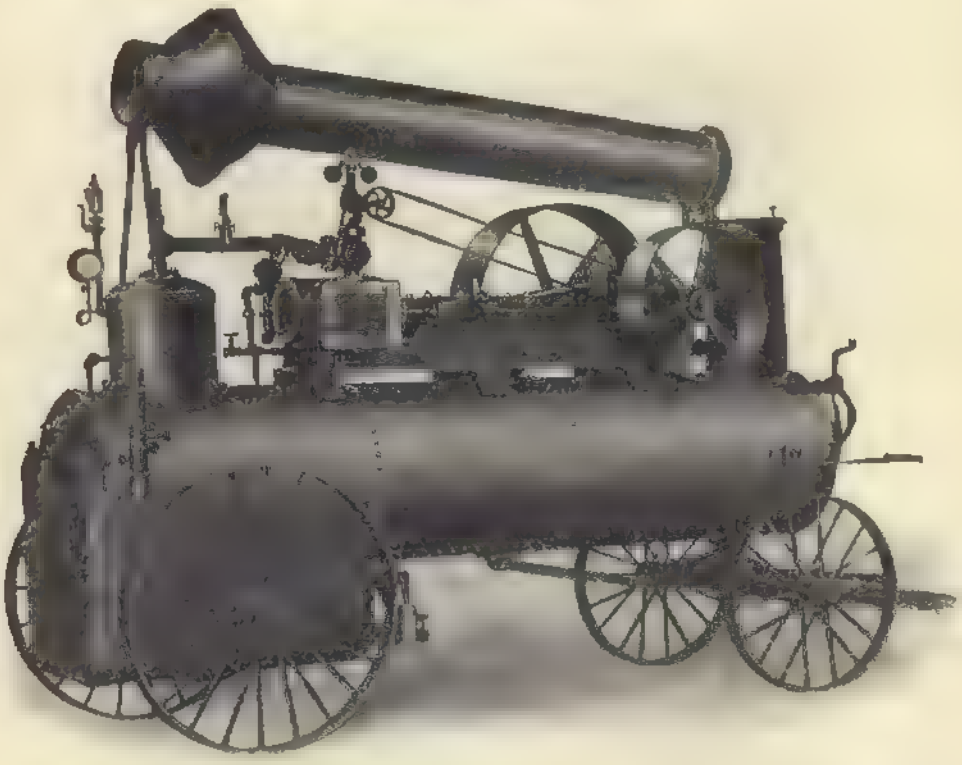
Cash or Number Checks.

Cash or Number Checks, are a staple article with stationers. There is a regular demand for these from restaurants, barber shops, shoe polishing shops and the like. These checks are in figures 5 and 10, illustration shows them original size, made of hard composite, highly polished, assorted red, and blue colors, figures in white on both sides. 100 in box.

No.		Per Box.
899.	Figure 5	.55
900.	Figure 10	.55

PORTABLE ENGINES AND BOILERS COMPLETE

Mounted on Wheels

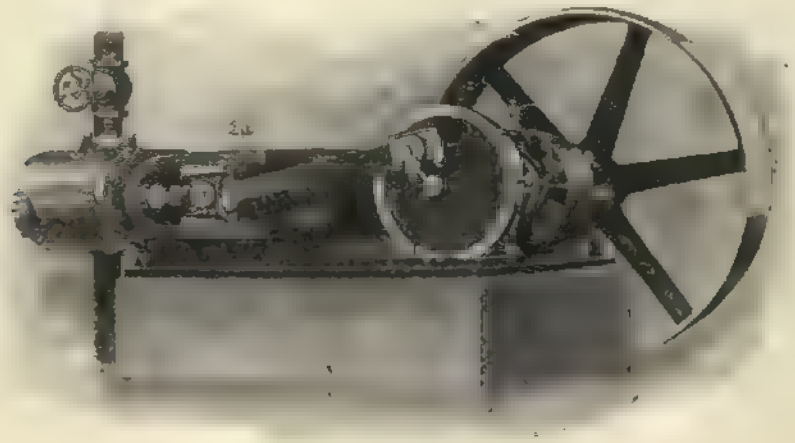


Regular prices include smoke stack, grate, safety valve, steam gauge, water gauge with water column, gauge cocks, whistle and pipe, blow-off, check and stop valves, pulleys, governor, throttle, pump, heater, governor belt, sight-feed lubricator, oil cups and pot cocks, also pipe connection between engine and boiler, brake, hand suction pump, driver's seat, tool box, tongue, neckyoke, doubletree and whiffletrees. **If any of these parts are not wanted, their price will be deducted.**

Specifications

Number of Size	Horse-Power	Diam. of Cylinder & Ordinary Fly Stroke Inches	Ordinary No. of Revolutions	Diam. of Pulleys in Inches	Face of Pulleys in Inches	Diam. of Boiler	Length Fire Box Inches	Width Fire Box Inches	Height Fire Box Inches	No. of 3-inch Tubes	Length of Tubes Inches	Estimated Weight Lbs.
0	6	4x 6	260	14 & 26	6½ & 6½	26	34	21	29	17	54	4,000
1	8	5x 8	240	14 & 32	10½ & 8½	28	36	22	32	18	60	4,400
2	9	6x 9	200	16 & 36	[illegible] & 9½	28	36	22	[illegible]	8	60	[illegible]
3	10	7x 9	200	16 & 36	10½ & 9½	30	38	24	34	22	72	5,400
4	[illegible]	7x10	190	20 & 44	[illegible] & 10½	32	38	26	38	[illegible]	72	[illegible]
5	15	8x[illegible]	190	20 & 44	[illegible] & 10½	[illegible]	44	26	38	[illegible]	78	[illegible]
6	20	8x12	190	22 & 48	10½ & 12½	34	52	28	38	30	90	8,300
7	[illegible]	[illegible]x12	190	[illegible] & 48	8½ & 12½	36	52	[illegible]	[illegible]	34	96	[illegible]
8	30	10x12	190	32 & 54	8½ & 12½	36	52	30	40	34	102	10,700
9	35	10x15	160	36 & 60	9½ & 12½	40	52	34	44	40	102	12,700
10	40	11x15	160	36 & 60	9½ & 12½	40	60	34	44	42	120	14,000

CLASS No. 600 HIGH SPEED AUTOMATIC CUT-OFF ENGINES



Front View Self-Contained Engine, Class No. 600

The main shaft bearings of these engines are provided with continuous chain oilers, fed from a reservoir below. The governor pin and the bearings on the rocker arm are provided with grease cups. All other bearings requiring lubrication have individual sight feed oil cups.

All engines 16x16 and smaller, unless otherwise specified are made in self-contained style shown above, larger engines all made detached. All engines regularly made self-contained can be made detached if desired.

Reference Number	Cylinder Dimensions: Diam. Inches	Cylinder Dimensions: Stroke Inches	Standard Number of Revolutions per Minute	Range of Power over which Engines Have Power	Main Shaft: Diam. Inches	Main Shaft: Length Inches	Band Wheel: Diam. Inches	Band Wheel: Width of Face Inches	Diam. of Steam Pipe Inches	Diam. of Exhaust Pipe Inches	Approx. Floor Space Req.: Length Inches	Approx. Floor Space Req.: Width Inches	Approx. Shipping Weight, Lbs.
605	6	8	325	13 to 18	2⅞	46	41	7½	2	3	71	55	1,600
606	7	8	325	18 " 25	2⅞	46	40	8½	2	3	71	55	1,650
607	8	10	300	23 " 34	3⅛	54	44	9½	2½	3½	84	65	2,800
608	9	10	300	34 " 45	3⅛	54	44	10½	2½	3½	84	65	2,900
609	10	12	275	40 " 60	4⅛	64	54	12½	3	4	101	77	4,600
610	11	12	275	50 " 70	4⅛	64	54	12½	3	4	101	77	4,700
611	12	14	250	65 " 85	5⅛	72	66	14½	3½	4½	120	86	6,900
612	13	14	250	80 " 100	5⅛	72	66	15½	3½	4½	120	86	7,100
613	14	16	225	90 " 115	6⅛	82	78	17	4	5	137	97	10,400
614	15	16	225	110 " 135	6⅛	82	78	18	4	5	137	97	10,600
615	16	16	225	130 " 150	6⅛	82	78	19	4½	6	137	97	10,800
616	17	18	200	150 " 175	7⅜	90	90	21	5	6	161	109	15,900
618	18	18	200	175 " 200	7⅜	90	90	23	5	6	161	109	16,200

Engines of this type, as regularly made, are left hand engines and will be so furnished unless specified to the contrary. Right-hand engines can, however, be furnished if desired.

The fixtures included with each engine are shaft governor, band flywheel, globe throttle valve, nickel-plated double glass sight feed cylinder lubricator and connections, nickel plated grease cups for rocker arm connections and governor, cylinder drain cocks, valve for draining steam chest, special spanner wrench, oil gauges for self-oiling main shaft journals and a complete oiling system consisting of oil cups for top guide, cross-head pin and eccentric, and our special ball oiler for crank pin and our improved positive boat oiler for the cross-head pin.

The regular finish of all standard self-contained and detached engines of this class includes the polishing of the connecting rod brasses, valve rod and eccentric rod, also the bands at the ends of cylinder and the rim of the crank disc. All other parts are carefully filled, sanded smooth and painted. Foundation plans and full directions for setting up and operating accompany each outfit.

PORTABLE SHOP CRANE

Steel Frame. All Wheels with Roller Bearings

Time and money can be saved by having one man use this derrick and accomplish what usually requires from two to five men.

In handling heavy work one man can pick up the load alone, carry it from one place to another and place it on the machines without any help whatever.

One small repair shop has a No. 1 derrick for handling street car armatures and work of that kind. One man will take a 600-pound armature from the dray and swing it in the lathe in from one and one-half to two minutes, while before they had the derrick it took four men from fifteen to twenty minutes.

Made in 3 sizes, all 8 feet in height.

No. 1, 1,000 lbs. capacity, weight about 260 lbs.				Price.	$57 00
No. 2, 2,000 lbs.	"	"	" 340 lbs.	"	72.00
No. 3, 3,000 lbs.	"	"	" 420 lbs.	"	88.00

Can make different heights to suit your requirements.

PORTABLE SHOP CRANE AND HOIST

For the Convenient and Quick Hoisting and Transporting of Machinery of any Shape or Weight up to Three Tons

The body of the crane base, wheels and projecting arms are of cast iron. The front axle is of cast steel having a tensile strength of 75,000 pounds per square inch.

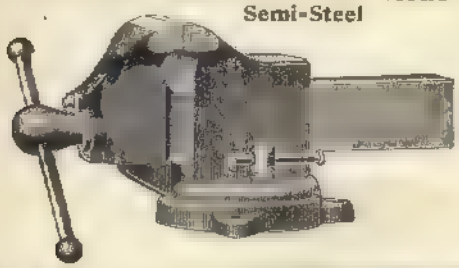
A wide, heavy band of wrought iron reinforces the projecting arms, and is bolted through the hook plate and extends through the base. All machines are roller bushed.

Size	Capacity Tons	Height of Crane	Height of Hoist	Over-hang	Length and Width of Bed	Wgt., Lbs.	Price Complete
1	1½	6' 5"	5' 5"	2' 4½"	3' 2" x 2' 8"	665	$100.00
2	2	7' 10	6 8"	2' 7½"	3'10" x 2'10"	785	112 50
3	2½	9'	7' 10"	2' 8½"	3'10" x 3' 2"	1000	125.00
4	3	9' 10"	8' 8"	2'11"	3'11" x 4' 2½"	1150	150.00

Height of bed plate is 12 inches, but can furnish Nos. 2 and 3 with low down bed plate only 6½ inches in height (as shown in cut) for running under machines.

With Low Down Bed Plate

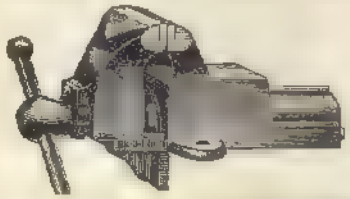
PARKER'S SLIDE SOLID JAW VISES
Semi-Steel



Jaws Inches	Opens Inches	STATIONARY BASE No.	Wt	Price	SWIVEL BASE No.	Wt	Price
3¼	4	29	30	$ 6 [illegible]	22	35	$ 7 0[illegible]
3¾	6¼	39	47	7.00	23[illegible]	5[illegible]	8 75
4¼	7	49	61	9 [illegible]	24[illegible]	73	11 [illegible]
4¾	8	59	80	11 75	25	92	14 50
5½	9	69	1[illegible]5	16.25	26[illegible]	132	20.50
6¼	9½	79	134	24.00	279	185	30 00

The above are all equipped with the new improved slide strengthener. The steel faces are all milled and fitted to the jaws and may be renewed.

PARKER'S OVAL SLIDE VISES



No.	Width Jaw Inches	Weight, Lbs.	Price, Each
30	2[illegible]	8½	$ 2.50
31	3	13	3 00
32	3¼	19	4 25
33	3½	22	4 75
34	4	28	6 50
35	4¾	35	9 50
36	5¼	62	12 00

PARKER'S PATENT COMBINATION PIPE VISES

Round and Pipers' Jaws

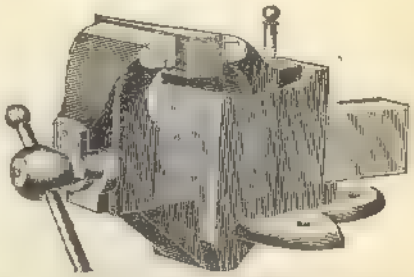
Swivel Base

No.	Jaws Inches	Weight, Lbs.	Holds Pipe, Inches	Price
87	3⅝	41	2 and under	$16 00
88	4⅛	59	3 and under	20 00
288½	4¾	105	4 and under	28.00
289½	5⅝	155	6 and under	35 00

Stationary Base

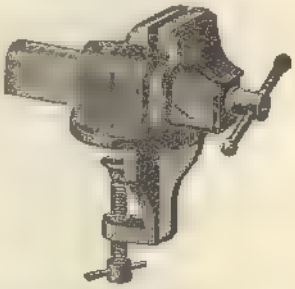
88½	4¾	94	4 and under	$28 00
89½	5⅝	141	6 and under	35 00

PARKER'S PATENT VICTOR VISES
Adjustable Jaws



Size Jaws Inches	STATIONARY BASE No.	Weight	Price	SWIVEL BASE No.	Weight	Price
3¼	37[illegible]	[illegible]	$ [illegible]	27	30	$ 7 00
3⅞	371	34	7 00	271	42	8 50
4½	372	57	10 00	272	60	12.50
5	373	73	14.00	273	78	16 00
5½	374	98	17 00	274	110	19.00
6¼	375	150	24.00	275	165	27 00

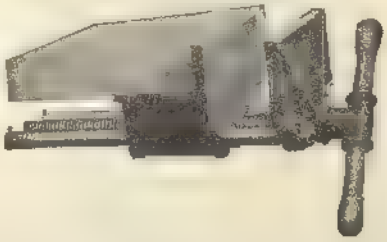
DIAMOND VISES



Made in Three Patterns

No. 1 Plain Bench Vise, 2½-inch, jaw opens 3 inches . . . . . each $2 00
No. 2 Clamp Bench Vise, 2½ inch, jaw opens 3 inches . . . . . each 2 40
No. 3 Swivel Bench Vise, 2½-inch jaw opens 3 inches . . . . . each 2 60
Pipe Jaws to fit above vises . . . . . per pair .35

WILCOX RAPID ACTING VISE
No. 230 for Wood Workers



No. 1. Jaws, 7 inches wide, 4 inches deep; open, 10-inch screw, 1-inch diameter, 4 threads to 1 inch; weight, 29½ lbs. . each $5.00
No. 2. Jaws, 10 inches wide, 5 inches deep, open, 12-inch screw, 1 inch diameter, 4 threads to 1 inch; weight, 36½ lbs. . . each 6.00

IMPROVED HAND VISE

Nickel Plated

For holding wire there is a hole through the handle and screw. Weighs 8 ounces.

PRICES

Each	$ 1.75
Per dozen	18.00

JEWELER'S PIN VISE

Nickel Plated

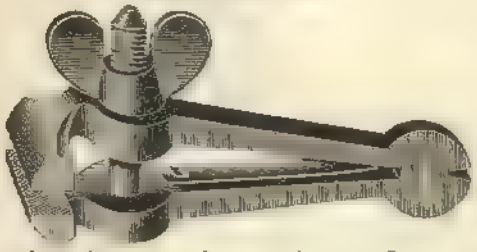
The screw is large, cleanly cut, and covered from dirt.

PRICES

Regular size	Each, $1.50	Per dozen,	$15.00
Small size	" 1.20	"	12.00

HAND VISES

Bright Steel Jaws



Length, inches	3	4	5	6
Per dozen	$6.00	$6.00	$8.20	$12.00
Each	.60	.60	.80	1.20

ALFORD HAND VISE, No. 1

The jaws are of forged and tempered steel, the screw and cross bar are also made of steel, the handle is made of Cocobola. It is hollow, and the bit shank and tools shown in the cut, are placed inside. The blades bent at right angle are used for cutting washers.

The vise jaws are 1¼ inches wide and open 1⅛ inches. They will center and hold tools firmly of any shape. The handle can be unscrewed from the vise and the bit shank put in its place, to be used with a bit brace for any kind of boring; drilling or cutting washers. The handle can also be screwed into the vise at right angles with its usual position, which is desirable for many kinds of work.

Price, with all the tools.....Each, $2.10
Per dozen.....21.00

THE BOSS HAND VISE, No. 540

This vise (except handle) is all steel, hardened throughout, and finely finished with polished jaws.

Width of Jaws, inches	Jaws Open, inches	Weight lbs.	Price
1¼	¾	⅛	$0.75
1½	1	¼	1.00

STANDARD HAND VISE, No. 549

Drop forged and tempered steel jaws, finished black and bright, handles on bright finish Cocobola, on black, Cherry.

Width of Jaws, inches	Jaws Open, inches	Weight, ounces	Prices Each	
			Black	Bright
1¼	1¼	14	$1.25	$1.50
1½	1½	18	1.50	1.75

The longer we are in business, the more we appreciate that the majority of buyers want

"GOOD GOODS AT REASONABLE PRICES."

We sell our goods on this basis. We offer our 30 years of selling experience to those interested in our line.

"Concentrate your purchases"

PRESSURE OR VACUUM GAUGES

Graduated up to 500 Pounds

BOURDON SINGLE SPRING

Prices, Including Cock

Dial, inches	Iron Case, Brass Ring	Iron Case, N. P. Ring	Brass Case	Brass Deep Case, O. G. or Oct. Ring
12	$50 00	$51 50	$75 00	$80 00
10	32 00	33 00	46 00	44 00
8½	22 00	22 75	30 00	33 50
6¾	16 00	16 60	20 00	23.00
6	13 00	13 50	16 00	18 50
5½	10 00	10 25	12 00	13 75
5	8 00	8 20	11 00	12 50
4½	8 00	8 20	10 00	11 50
3½	7 00	7 18	9 00	10 25
3	6 00	6 15	8 00	9 25
2½	6 00	6 15	8 00	9 25
2	6 00	6 15	8 00	9 25

Iron case gauges with spun brass jacket sold at brass case list and discount.

Nickel plated gauges and gauges larger than 12-inch dial quoted upon application.

BOURDON DOUBLE SPRING

Prices, Including Cocks

Dial inches	Iron Case, Japanned	Iron Case, N. P. Ring	Brass Case	Brass Deep Case O. G. or Oct. Ring
12	$55 00	$58 50	$80 00	$85 00
10	37 00	38 00	45 00	49 00
8½	25 00	25 75	34 00	37 50
6¾	18.00	18 60	22 00	25 00
6	15 00	15 50	18 00	20 75
5½	12 00	12 25	14 00	16 25
5	11 00	11 20	13.00	15 00
4½	10 00	10 20	12.00	13 75

FARM ENGINE GAUGES

This gauge is especially adapted for traction engines, having but one short spring and is rigid and suitable for hard service, on tough roads, etc.

Dial, inches	Iron Case, Brass Ring	Iron Case N. P. Ring
5½	$10 00	$10 25
5	8.00	8 20
4½	8.00	8.20
3½	7.00	7.18

COMMON STEAM WHISTLES

Brass

Fig. 4
Without Valve

Fig. 5
With Side Valve

PRICES

Diameter of Bell inches	Size of Steam Pipe inches	Whistle Fig 4	Whistle Fig 5
1	¾	$ 2 20	$ 3 10
1¼	⅞	2 75	3 75
1½	⅞	3.00	4 00
2	¾	4 45	5 50
2½	¾	5 25	6 50
3	1	7 25	8 50
3½	1	9 50	11 50
4	1¼	12 00	15.00
5	1½	19 00	22 50
6	2	24 00	33 00
8	2½	70 00	95 00
10	3	125 00	175 00

In ordering, state figure and diameter of bell

SINGLE BELL CHIME STEAM WHISTLES

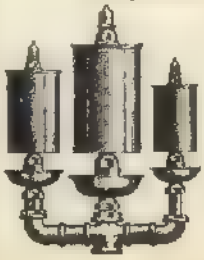
Fig. 1
Without Valve

Fig. 2
With Upright Valve, Locomotive Style

Fig. 3
With Side Valve

Diameter of Bell	Size of Steam Pipe	Fig 1	Fig. 2	Fig 3
1½ inch	½ inch	$ 4 50	.....	$ 6 00
2 "	½ "	5 00	.....	8 00
2½ "	¾ "	7 50	.....	11 00
3 "	¾ "	9 60	.....	14 00
4 "	1 "	15 00	$20 00	18 00
5 "	1¼ "	28 00	35 00	35 00
6 "	1½ "	42 00	50.00	50 00
8 "	2 "	85 00	.....	110 00
10 "	2½ "	190 00	.....	210 00
12	3 "	280.00	.....	300 00

THREE-BELL CHIME WHISTLES



PRICES

No 1. Composed of one each, 1½, 2 and 2½ inch Whistles. Size of steam pipe, 1 inch.. $ 22.00

No. 2. Composed of one each, 3½, 4 and 4½ inch Whistles. Size of Steam pipe, 1½ in. $ 40.00

No. 3. Composed of one each, 5 6 and 8 inch Whistles. Size of steam pipe 3 inch $109 00

Standard size whistles are furnished with the above, bells of which are in length about twice the diameter

AXE RACKS.

ONE SENSIBLE RACK only, given free of charge, to each customer, with a Purchase of Ten Dozen Assorted Axes of OUR OWN BRANDS

Showing Sensible Rack.
Displaying Handled and Unhandled Axes.

Each

No. S—SENSIBLE Axe Rack; Hardwood, Oil Finished, with Edges and Top Painted Red and Varnished, Capacity 32 Handled or 32 Unhandled Axes; if Larger Capacity is Wanted, Two Racks may be placed back to back, thus holding 64 Axes Height 13 inches; Length 27 inches; Width 14½ inches; Weight each about 25 lbs. $4.00

One in a Crate

ONE EUREKA RACK only, given free of charge to each customer, with a purchase of Four Dozen Assorted Axes of OUR OWN BRANDS.

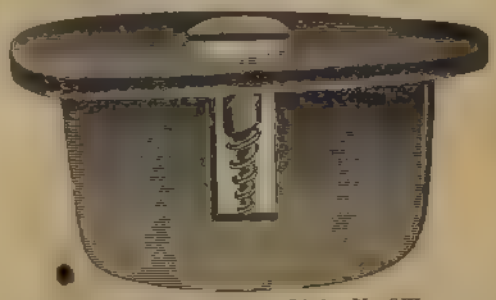
Axes can be placed in any position on the Rack and it will not overbalance; will not accommodate Handled Axes, but affords a means of very attractively Displaying Unhandled Axes on a Counter or in a window.

Each

No. E—EUREKA Axe Rack; Oak Frame, Handsomely Grained and Varnished; Nickel Plated Steel Arms or Pins; Capacity 16 Unhandled Axes; Height 32 inches; Length 12¼ inches; Width 11½ inches; Weight each about 10 lbs. $2.00

One in a Crate.

AXE WEDGES.



Cut Full Size, Showing Wedge No. SW, complete with Screw.

MALLEABLE IRON, PLAIN FINISH.

Per Gross

No. W—Bit 1¼x1⅞ inches; Top Plate ¾x2½ inches; Without Screw; Weight per gross about 18 lbs. $6.00

No. SW—Bit 1¼x1⅞ inches; Top Plate ¾x2½ inches; Complete with 1 inch No. 15 Flat Head Bright Wood Screw; Weight per gross about 19 lbs. 10.00

One Gross in a Cardboard Box.

We suggest the following list of Handles as most suitable for Various Weights of Axes:

3 and 3½ LB. AXES.

KEEN KUTTER* Handle No. KN36.
WISCONSIN* Handles Nos. R4X, R3X, L4X and L3X.
BLUE OAK* Handles Nos. A1N, A1L and B2L.

3 to 4 LB. AXES.

BLUE OAK* Handles Nos. A1R and B2R
MINNESOTA CHIEF* Handles Nos. MC4X and MC3X.

3½ to 5 LB. AXES.

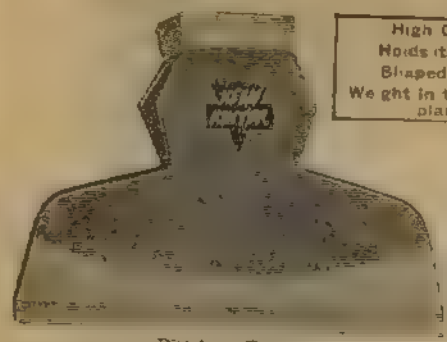
KEEN KUTTER* Handles Nos. KX36 and KR36.
Entire line NONPAREIL*, COLORADO*, CHAMPION*, WYOMING* and CUMBERLAND* Handles.
BLUE OAK* Handles Nos. A1R and B2R.
All STANDARD Turned and Shaved Handles.

4 to 6 LB. AXES.

Entire Line of CUMBERLAND* Handles, especially No. CHXXX, etc.
LONE STAR* Handles.
KREOLE* Handles Nos. K10 and K20.
All STANDARD Turned and Shaved Handles.

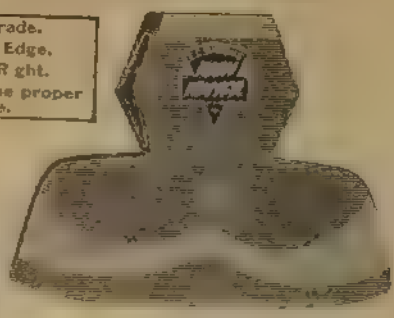
TRADE MARKS:
E. C. SIMMONS KEEN KUTTER
AND CHIPAWAY
R[illegible]

BROAD AXES.



Pittsburg Pattern.

High Grade.
Holds its Edge.
Shaped Right.
Weight in the proper place.



Ramsey Pattern.

Canada Pattern.

KEEN KUTTER*

Soft Steel Body; Hardened Poll; Highest Grade Crucible Forged Steel Laid Bit, Hand Tempered and Tested; Gold Bronzed Body; Polished Head and Bit.

PITTSBURG PATTERN

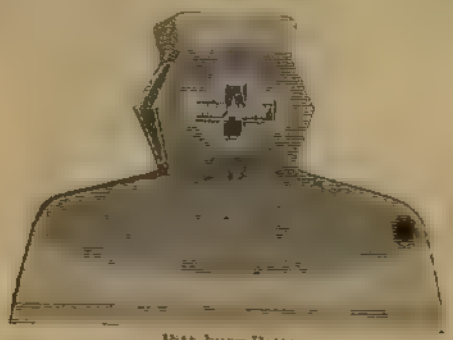
Nos.	KP67	KP78
Weights in a Box, Assorted, lbs.	6 to 7	7 to 8
Width of Cutting Edge, inches	11 to 12	12 to 13
Weight per dozen about, lbs.	96	102
Per dozen	$32.00	35.00

RAMSEY PATTERN.

Nos.	KR78
Weights in a Box Assorted lbs	7 to 8
Width of Cutting Edge, inches	11½ to 12½
Weight per dozen about lbs	102
Per dozen	$46.00

CANADA PATTERN.

Nos.	KC67	KC78	KC89
Weights in a Box, Assorted, lbs.	6 to 7	7 to 8	8 to 9
Width of Cutting Edge, inches	10½ to 11½	11½ to 12½	12½ to 13½
Weight per dozen about, lbs.	90	102	114
Per dozen	$44.00	46.00	48.00



Pittsburg Pattern.

Canada Pattern.

CHIPAWAY*

Soft Steel Body; Hardened Poll; Special Crucible Forged Steel Laid Bit, Carefully Tempered; Fire Bronzed Body; Polished Head and Bit.

PITTSBURG PATTERN.

Nos.	CP67	CP78
Weights in a Box, Assorted, lbs	6 to 7	7 to 8
Width of Cutting Edge, inches	11 to 12	12 to 13
Weight per dozen about, lbs	96	102
Per dozen	$32.00	35.00

CANADA PATTERN.

Nos.	CC67	CC78	CC89
Weights in a Box, Assorted, lbs.	6 to 7	7 to 8	8 to 9
Width of Cutting Edge, inches	10½ to 11½	11½ to 12½	12½ to 13½
Weight per dozen about, lbs.	90	102	114
Per dozen	$44.00	46.00	48.00

ROYAL* (Second Quality).

Soft Steel Body, Gold Bronzed; Crucible Forged Steel Laid Tempered Bit; Polished Head and Bit.

PITTSBURG PATTERN.

Nos.	RP67	RP78
Weights in a Box, Assorted, lbs.	6 to 7	7 to 8
Width of Cutting Edge, inches	11 to 12	12 to 13
Weight per dozen about, lbs.	90	102
Per dozen	$32.00	35.00

CANADA PATTERN.

Nos.	RC67	RC78
Weights in a Box, Assorted, lbs.	6 to 7	7 to 8
Width of Cutting Edge, inches	10½ to 11½	11½ to 12½
Weight per dozen about, lbs.	90	102
Per dozen	$44.00	46.00

One-half Dozen in a Wood Box.

EXPRESS WAGONS AND RACERS.

TOLEDO STEEL GEAR WAGONS.

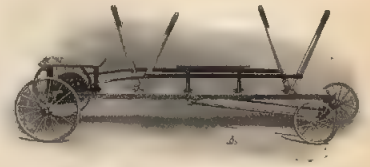
ALL STEEL GEAR, XC PLATE TINNED WHEELS, PAINTED AND STRIPED BEDS.

Nos.	02	0	1	2	3
Body, in.	11x22	12x24	13x26	14x28	15x30
Front Wheels, in.	8	8	10	11	12
Rear Wheels, in.	11	12	13	14	15
Per dozen	$24.00	30.00	34 00	38.00	42.00

Packed With Wheels in the Bed, quarter or half dozen in a combination crate.

GLASSCOCK RACERS.

No. 1.

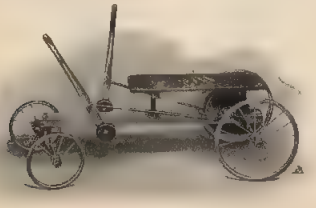


No. 2

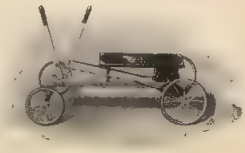
Each

No. 1. Rubber Tires, built for boys and girls from six to fifteen years of age, no dead center, three different motions, $5 00

No. 2. Rubber Tires, built for two, ages from six to twelve years, extra strong, no dead center, three different motions 8.50



No. 3.



No. 4 Junior

No. 3. Rubber Tires, built for girls from six to twelve years of age, the most genteel and easiest running car built for girls, no dead center, three different motions $8.50

No. 4. Junior, for children from two to six years of age, any child can ride this car, no dead center, three different motions 5.00

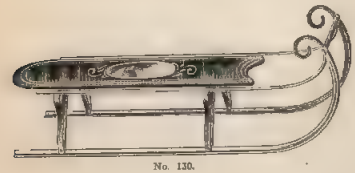
SLEDS AND COASTERS.

WABASH SLEDS.

Per dozen

No. 128. **Wabash Sleds,** 28 in. long, 12 in. wide, 6 in. high, shipping weight 60 lbs per dozen $12 00

Half dozen in crate, knocked down.



No. 130.

No. 4.

Per dozen

No. 130.	**Wabash Sleds,** 30 in. long, 13 in. wide, 6 in. high	$16.00
No. 4.	**Wabash Sleds,** 33 in. long, 11½ in. wide, 7 in high	18.00
No. 6.	**Wabash Sleds,** 36 in. long, 12 in. wide, 7 in. high	21.00
No. 8.	**Wabash Sleds,** 38 in long, 12 in. wide, 7 in. high; 3 knees	28.00

Half dozen in crate, knocked down.

WABASH COASTERS.

Per dozen

No. 232. **Wabash Coasters,** 32 in. long, 12 in. wide, 4½ in. high $12 00

Half dozen in crate, knocked down.

No. 234.

No. 3.

Per dozen

No. 234.	**Wabash Coasters,** 34 in. long, 12 in. wide, 4½ in. high	$16.00
No. 3.	**Wabash Coasters,** 38 in. long, 11 in. wide, 5 in. high	18.00
No. 5.	**Wabash Coasters,** 42 in. long, 11 in. wide, 5 in. high	21.00
No. 7.	**Wabash Coasters,** 44 in. long, 12 in. wide, 5 in high; 3 knees	28.00

Half dozen in crate, knocked down.

FLEXIBLE FLYERS.

No. 1.

No. 2

Each

No. 1.	**Flexible Flyers,** length 33 in., height 6 in., width 12 in., weight 8 lbs.	$2.50
No. 2.	**Flexible Flyers,** length 40 in., height 6¾ in. width 13 in., weight 9 lbs.	3 00

READING STANDARD

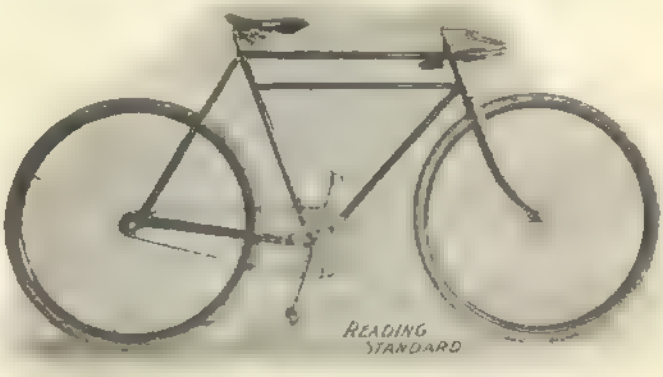
BICYCLES AND MOTOR CYCLES

Reading Standard Bicycles

The Most Complete Line Ever Offered to the Dealer

READING STANDARD RACER, "The 50-Mile-an-Hour Wheel"

A model for every requirement, and every one a model of its kind. The READING STANDARD agent is in position to meet every call that may arise and few are the orders that can get past him



READING STANDARD ROADSTER, Will Take You There and Back

THERE ARE NO BLANKS IN THE READING STANDARD LINE. Every one is a winner, as it embodies all the excellences that make a bicycle desirable. If you do not know the READING STANDARD line, get acquainted at once.

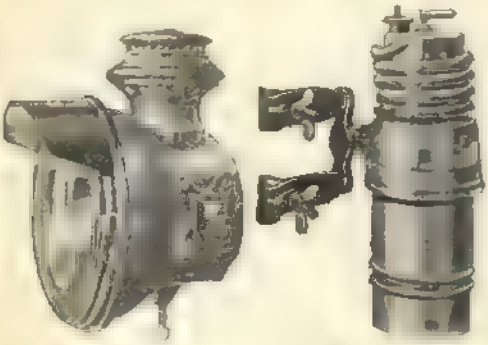
Write us for full information.

READING STANDARD COMPANY :: READING, PA.

The "Rose" Motorcyle Gas Lamp and Generator

Following the suggestions of various motor cycle owners as well as motor cycle manufacturers the Rose Manufacturing Company, 910 Arch Street, Philadelphia, Pa., has designed the motor cycle headlight and generator shown herewith, the result of this concern's vast experience in the motor vehicle lighting line.

The headlight is equipped with a special mirror lens reflector and a forward aluminum reflecting flange. A specially constructed hood is fitted for throwing the light on the road, and incidentally protecting the eyes of the rider. The lamp is



The "Rose" Motorcycle Gas Lamp. The "Rose" Motorcycle Gas Generator.

equipt with two bracket holders, in order to impart rigidity. A holder for flat bracket at rear of headlight is furnished only when requested. The headlight has a 6-inch face, and is 7¾ inches high. It is made of brass, nickel plated, and fully riveted thruout, and cannot shake apart.

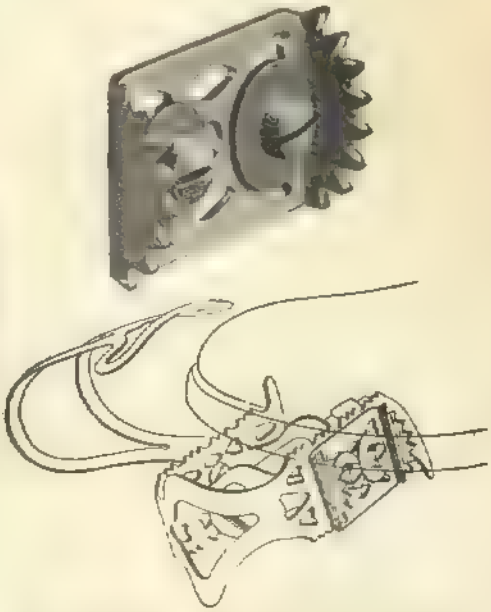
The Rose motor cycle gas generator is made on the most approved lines of acetylene gas generation. It is 8¼ inches high, 3¼ inches in diameter, and is fitted with a bracket especially designed for securely fastening it to the front fork of the motorcycle. An adjustable clamp is fitted for maintaining the generator in a perpendicular position. The generator will burn for 6 hours on one charge.

This generator contains the Neverout Patent Air Cooling System, thereby insuring a steady and bright light.

The "Kach Klipx" for Catching the Pedal

The Persons Mfg Co., Worcester, Mass., have added to their line another of those small things that serve useful purposes—the Kach Klipx, as they call it, designed to make the "catching" of a pedal a simple and easy matter when toe clips are used.

All pedal cycle and motorcycle riders know the trouble that is usually encountered in trying to turn the pedal so that the toe may be slipped into the toe clip. Generally the foot engages the flat side of the pedal and the slight backward pressure necessary to roll the pedal into the correct position results in the foot slipping off, often with disagreeable results. The Kach Klipx is designed to correct this tendency without adding either noticeable weight or mechanism to the pedal. It is a simple little contrivance, consisting of a toothed metal plate screwed on to the



The "Kach Klipx." Upper cut shows the device before being applied to the pedal, and the diagram below illustrates the action of the device in use

flat side or back of the pedal where the sole of the shoe will engage it and permit the pedal to be readily rolled by the foot into a position where the toe can be easily slipt into place.

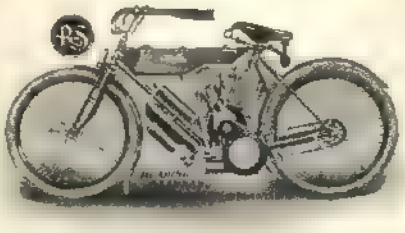
The Persons Manufacturing Co. will mail a sample pair of these Kach Klipx to any rider or dealer upon receipt of 16 cents in stamps.

Denver, Col., is said to have no less than 650 motorcyclists, and an effort is now being made to organize a club and secure a house, fit it up as a modern athletic club, with shower baths, billiard room, shelter for at least one hundred machines and other conveniences.

Application has been made by President W. A. F. Estes for a permit authorizing the use of the streets for the motorcycle race to be held in Waltham, Mass., on July 4th. As soon as action in the matter is taken by the Mayor, a meeting of the local and Boston clubs will be held to make definite plans for the event.

R-S

MOTOR CYCLES



"R-S" Motorcycles

(AMERICA'S BEST)

THE first and only real Mechanical Intake Valve Motorcycle made and marketed in the United States. Thousands in successful use. The only Motorcycle to climb Pike's Peak. Full of practical features and improvements.

The "R-S" line comprises Single and Twin Cylinder machines, Tandems, Tricycles, Tri-Cars and Delivery Vans, and represents the most value as well as the most advanced motorcycle construction.

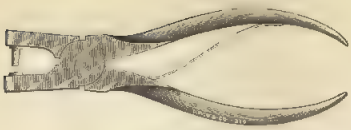
Hundreds of testimonials from every part of United States showing "R-S" achievements in racing, record making, hill climbing and endurance tests sent FREE with complete illustrated catalogue.

Reading Standard Company

READING, PA.

Makers of the Renowned Reading Standard Bicycles

SPRING PUNCHES.



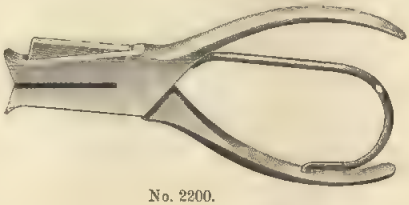
No. 343.

No. 357.

No **343**, Single, Extra Quality Steel, Full Polished, Assorted Tubes, - - Per dozen, $ 6 00
" **357**, Revolving, Extra Quality Steel, Full Polished, with 4 Tubes, Nos. 4, 6, 8 and 10, " 16 00
Extra Tubes, Nos. 4, 6, 8 and 10, - - - - - " 2 00

Half dozen in a box.

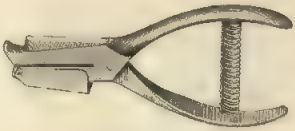
CONDUCTORS' PUNCHES.



No. 2200.

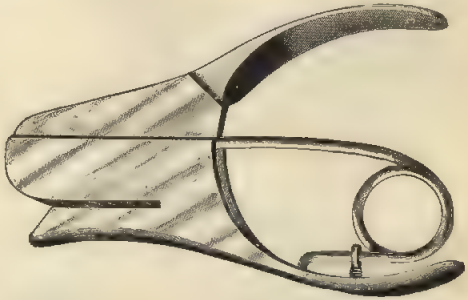
No. **2200**, Length 4 inches, Reach ⅜ inch,
Nickeled, - - Per dozen, $6 70

Assorted designs.

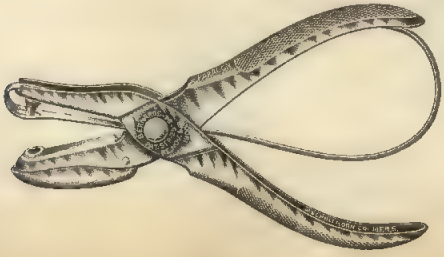


RESERVOIR PUNCH.

No. **2220**, Length 4 inches, Reach ⅜ inch,
Per dozen, $13 00



No. **2590**, Nickeled, - - Per dozen, $27 00



PARAGON · RESERVOIR TICKET PUNCHES.

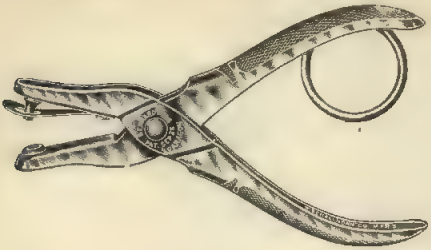
Especially useful for Card Parties.

The Reservoir which opens and shuts with a spring, retains the clippings, not allowing them to scatter over the floor.

No. **260**, 5 inches, Full Nickel Plated, Per dozen, $4 50

Half dozen in a box, with six assorted designs.

MORLEY-MURPHY HARDWARE COMPANY, GREEN BAY, WIS.

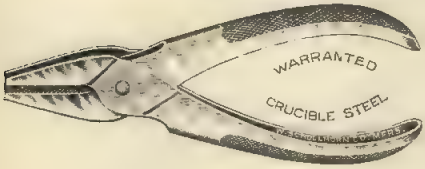


PARAGON TICKET PUNCHES.

Full Nickel Plated.

No. **250**, 5 inches, - Per dozen, $4 00

One-half dozen in a box with 6 assorted designs.

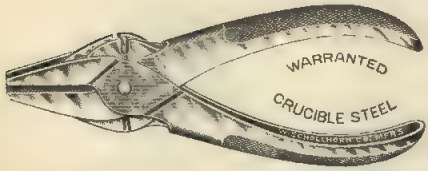


PARAGON PLIERS.

FLAT NOSE.

Fine Polished Jaws, Full Nickel Plated.

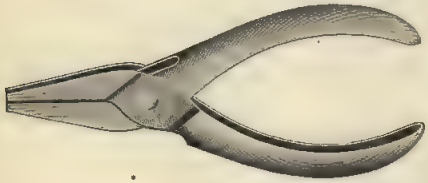
Inches,	4	5	5½	6
No. **200**, Per dozen,	$2 00	3 00	3 50	4 00



CUTTING.

Fine Polished Jaws, Screw and Nut Joint, Full Nickel Plated.

Inches,	5	6
No. **202**, Per dozen,	$5 00	7 00



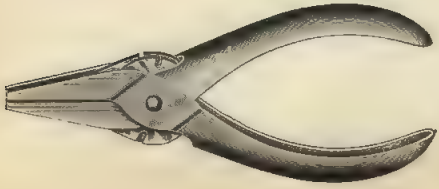
LODI PLIERS.

FLAT NOSE.

Bright Finish.

Inches,	4	5	5½	6
No. **300**, Per dozen,	$1 00	1 50	1 75	2 00

One dozen in a box.



CUTTING.

Made to Cut Soft Wire.

Inches,	5	6
No. **302**, Per dozen,	$2 00	3 00

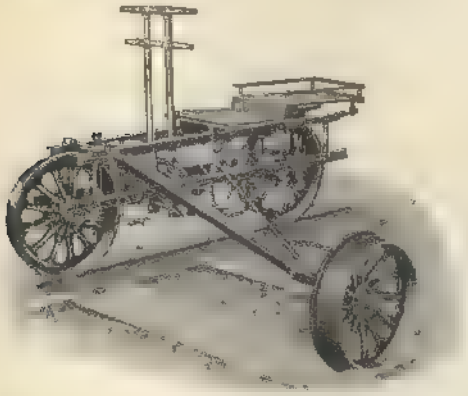
One dozen in a box.

No. 65 RAILROAD PUSH CARS

Extra heavy; standard gauge; platform 7 feet long by 5 feet 7 inches wide; pressed steel wheels 20 inches in diameter; machine steel axles 2 inches in diameter.

Weight 700 lbs.....Price, $40.00

RAILROAD VELOCIPEDES



Light, durable and easily operated and handled.

Built of tough rock elm, with patent single-plate pressed steel wheels, with ball bearings

NO. 1 STANDARD

As shown by illustration above

Weight 150 lbs.....Price, $70.00

NO. 2 VELOCIPEDE

For two persons. Same style as No. 1, but with seat for passenger.

Weight 158 lbs ....Price, $73.00

NO. 3 TELEGRAPH CAR

For three persons Can be operated by one man, if desired. Has box for carrying tools and supplies.

Weight 195 lbs..... .....Price, $90.00

RAILROAD HAND CARS

With Pressed Steel Wheels

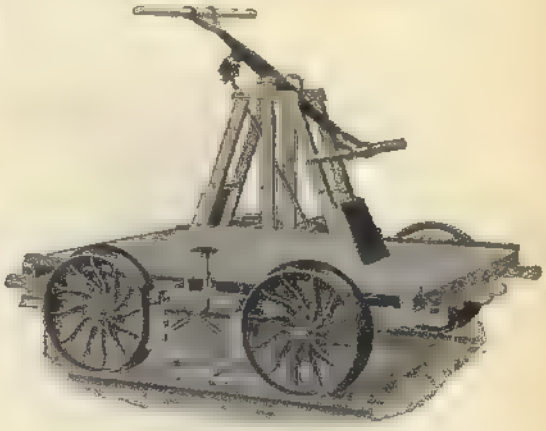


Illustration Shows No. 1 Car

NO. 1 STANDARD HAND CAR

Standard gauge; platform 6 feet long by 4 feet 5 inches wide; wheels 20 inches in diameter; axles 1½ inches diameter.

Weight 500 lbs..... Price, $60.00

NO. 2 BRIDGE GANG CAR

Standard gauge; platform 8 feet long by 5 feet 7 inches wide; axles 1¾ inches diameter.

Weight 700 lbs..... .....Price, $72.00

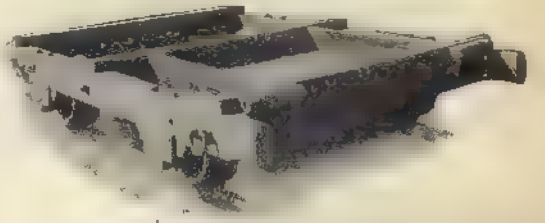
NO. 5 INSPECTION CAR

For use of roadmasters and supervisors of track, bridge builders, etc.

Same size platform as No. 1 car. Furnished with single or double end lever, as desired.

Weight 475 lbs..... .....Price, $80.00

10-TON TRACK LAYING OR RAIL CAR



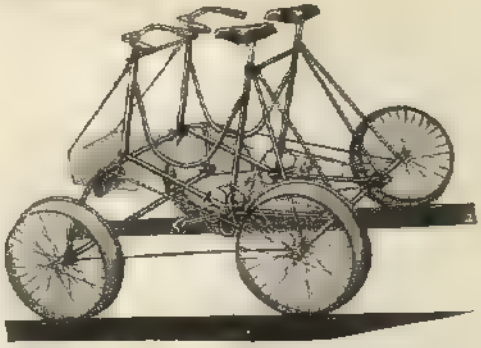
Standard gauge; size, 8 feet long by 6 feet 6 inches wide; chilled wheels 16 inches in diameter, with 6-inch tread; axles, 2¾ inches in diameter; capacity, 10 tons; sills, 4x8-inch oak; cross sills plated with iron; car fitted with chain and tool boxes, and has two rollers at each end

Weight about 2,000 lbs..... ....Price, $120.00

FOUR-WHEEL LIGHT INSPECTION CARS

BALL BEARINGS THROUGHOUT

Single-seated Car, Built any Gauge



Double-seated Car, Gauge 3 Feet and Larger

The single-seated car is fitted with detachable luggage basket and tool bag. Geared to suit grade conditions. The standard gear is 62; options of 53, 58 or 73. Net weight, 65 lbs. Shipping weight, crated, 100 lbs. Price.....$65.00

The double seated car is geared same as the single seated. Net weight 75 lbs. Crated for shipment, 125 lbs. Price.....$85.00

Detachable front seat for either car; weight, 15 lbs. Extra.....7.50

GASOLINE MOTOR CARS

FOR THREE PASSENGERS

It is substantially constructed throughout, none but the best of materials and workmanship being employed, and is strong, safe and durable. The engine and all of the working parts are under the platform, out of the way; the removal of a detachable section of platform directly over the motor, however, gives free access to all parts of the machinery. All parts are interchangeable.

Engine. The motive power is supplied by a three horse power motor. It has few parts, and its operation is readily mastered by any intelligent man. The engine is air cooled; radiation is aided by a fan, placed opposite the explosion chamber. The sparker is of the simple "make and break" type. The bearings are of phosphor bronze, adjustable and self centering.

Ignition. Each car is equipped with both magneto and battery, thus being provided with two entirely independent sources of electric current for ignition.

Transmission Gear. All motor cars are equipped with a two-speed forward and reverse gear. The high speed is used under ordinary conditions and will drive the car at a speed of 20 to 25 miles per hour. The low gear is used for starting the car, and for mounting grades, and will make a speed of about 7 miles per hour. All changes are made independently of each other and without effecting the motion of the engine.

Brake. Is convenient and effective, acting upon both rear wheels.

Seats. The seats are upholstered, and are comfortable as well as durable. These cars are remarkably free from vibration and it is a pleasure to ride in them.

Fuel. The motor uses ordinary stove gasoline, or petrol, of which the tanks on the car hold a supply sufficient to run one hundred miles.

Accessories. Each car is equipped with a locker, containing surplus gasoline can, oiler and tools.

Instructions. We furnish with each car full directions for its operation and care, accompanied by a blue print on which all the working parts are shown and designated by letters and figures for convenient reference in ordering repairs.

Weight. Net weight, 500 lbs. Crated for shipment, 800 lbs. Price.....$350.00

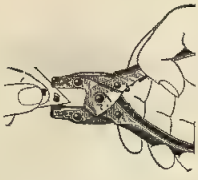
PUNCHES

No. Per doz.
2 Peerless for Challenge eyelets, all parts nickel-plated and interchangeable, requires but little pressure to punch holes and set eyelets $18 00

MORRILL'S UNIVERSAL PUNCH

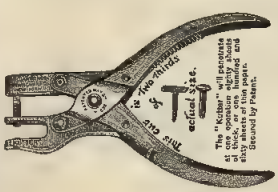
No. Per doz.
1 Constructed on a principle in mechanism new to tools of this kind, utilizing a cam and lever, and is a complete punching instrument It will perforate a 3/16 inch hole with a tight grip of the hand any thickness from tissue to ½ inch of leather, rubber paper, pasteboard, cloth, celluloid veneering and other pliable substances $16 00

THE "SOLIDHED" EYELET PLIERS



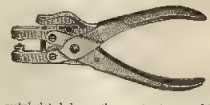
No. Per doz
A combination punch and eyelet set metal, nickel-plated, punches the hole and sets the eyelet without removing the tool $18 00

Per doz. boxes
Eyelets, aluminum, 250 in a box.... .. .. 1 50



Each
The Kotter Paper Fastener Punch Will penetrate at one operation 80 sheets of thick or 160 sheets of thin paper, ½ dozen in package... ....$1 60

THE TRIUMPH

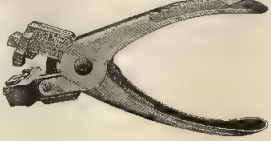


Each
Metal, nickel-plated, is greatly superior to any of its kind The "gauge" is a new feature of great utility, and all the obnoxious breakage of springs, etc., which continually occurs in other eyelet punches, is impossible in the Triumph $3 00

REGULAR EYELETS

No. Per doz. boxes
B 250 in a box $1 40
DB Short, 250 in a box 2 00
JB 250 in a box 2 00
DB Long, 250 in a box 4 00

PIN STAPLING TOOL



For binding legal papers, bills, dry goods samples, etc., etc No special supplies are required Any ordinary brass pin as all that is necessary to make a complete staple Pins Nos 4 and 5 are sizes specially suitable for this tool.

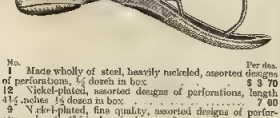
Each
Made from best tempered steel, nickel-plated, and polished packed 1 each in wood box $3 10

NAFEW PUNCH

No. Per doz.
1 Nickel plated, the most powerful hand punch made, will perforate anything from a thin sheet of steel to ½ inch of paper Each fitted up with ⅝ inch die. $24 00

Per set
Set of six additional interchangeable dies, assorted sizes $3 50

TALLY CARD PUNCHES



No. Per doz.
1 Made wholly of steel, heavily nickeled, assorted designs of perforations, ½ dozen in box . . $ 3 70
12 Nickel-plated, assorted designs of perforations, length 4½ inches ½ dozen in box 13 50
7R Nickel-plated, fine quality, assorted designs of perforations, length 4¾ inches, ½ dozen in box.. . ..... 7 80
9 Nickel-plated, fine quality, assorted designs of perforations, length 4¾ inches, ½ dozen in box.. . ..... 13 50
7R Nickel-plated, extra quality and finish, assorted designs of perforations, receptacle to hold chippings, length 4½ inches, ½ dozen in box... . ... 26 70

CONDUCTORS' PUNCHES

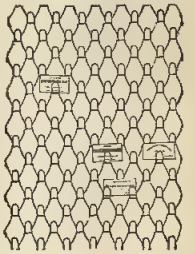
No. Per doz.
2 Crocker pattern nickel-plated length 4½ inches, $42 00

No. Per doz.
3 Nickel plated 1 inch slot, length 4 inches $33 60

No. Per doz.
6 Nickel-plated, 1¼ inch slot, length 5½ inches $22 80

No. Per doz.
4 Pennsylvania Railroad patentee, nickel-plated $42 00

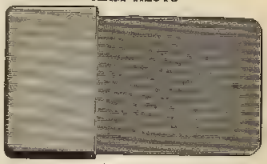
CARD RACKS



Folding wire, tinned, each 6 in package. Packages not broken 5 per cent extra discount allowed when ½ gross lots of a kind are ordered.

No. Per doz.
1 Size 18½x30 inches $1 90
1½ " 14½x27 " 1 70
2 " 13 x22 " 1 50
11 Special grade, size 10x28 inches 1 70

ARM RESTS



½ dozen in package

No. Per doz.
4 Quarter-sawed oak, shouldered and polished, size 8x14 .. .. $5 60
5 Same as No. 4 size 10x16 . 7 50

FIELDERS' GLOVES.

THE A. J. REACH CO'S.

Nos. 0B, 01 and 02.

Nos. 00W, 0C and 03.

Nos. 00X and 04.

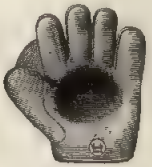
No. 56.

Nos. SW, SWN 3G and 3GN

		Each
No. 0B.	**The "Reach Special" Professional,** Drab Buckskin, Sizes 12, 13 and 14, can be furnished with Leather Lining at same price if desired	$3.00
No. 01.	**Black Calfskin,** otherwise same as No. 0B	3 00
No. 02.	**Brown Calfskin,** otherwise same as No. 0B	3.00
No. 00W.	**The "Reach Special" League,** Selected Strong Light Weight, Waterproof Drab Buckskin, Padded with best Asbestos Felt, Patent Hump, which is Double Stitched, Web Thumb and Patent Deep Pocket, Sizes 12, 13 and 14	3.50
No. 0C.	**Finest Brown French Calf,** otherwise same as No 00W	3.50
No. 03.	**Finest Black Calfskin,** otherwise same as No. 00W	3.50
No. 00X.	**The "Reach Special" League,** finest Light Weight Drab Buckskin, Padded with the best Felt, without Hump, this Glove is ready for use, requires no breaking in, Sizes 12, 13 and 14	2.50
No. 04.	**Finest Black Calfskin,** otherwise same as No. 00X	2.50
No. 56.	**The "Reach" Men's,** fine Mouse Colored Buckskin, Padded with best Asbestos Felt, Welted, Leather Lined, Patent Inside Hump and Patent Deep Pocket, Web Thumb	2.00
No. SW.	**The "Reach" Men's,** fine Pearl Colored Calfskin, Padded with Asbestos Felt, Web Thumb, Patent Inside Hump, and Patent Deep Pocket, Welted	2.00
No. SWN.	**Fine Black Colored Calfskin,** otherwise same as No SW	2.00
No. 3G.	**The "Reach" Men's,** excellent Quality Drab Suede Buck, Welted, Extra Heavy Padded with best Felt, Patent Deep Pocket, Web Thumb	1.50
No. 3GN.	**Black Tan Leather,** otherwise same as No. 3G	1 50

One in a box.

Nos. 1, 2L, 10, 10N, 11 and 4G.


Nos. 9 and 55.

Nos. 17 and 17N.

No. 40.

Nos. 45, 18, 18N, 12, 24 and 24N.

		Each
No. 1.	**The "Reach" Men's,** fine Pearl Colored Calfskin, Leather Lined, Padded with best Asbestos Felt, Welted, Patent Hump and Patent Deep Pocket, Web Thumb	$2 00
No. 2L.	**The "Reach" Men's,** excellent Quality Drab Suede Buck, Welted, Padded with best Felt, Leather Lined, Patent Hump and Patent Deep Pocket, Web Thumb	1.50
No. 9.	**The "Reach" Men's,** fine Brown Tan Leather, Heavy Padded, with best Felt, Welted, Web Thumb, and Patent Deep Pocket	1.50
No. 2.	**The "Reach" Men's,** excellent Quality Drab Suede Buck, Welted, Padded with best Felt, Patent Hump and Patent Deep Pocket, Web Thumb	1.25
No. 55.	**The "Reach" Men's,** Good Quality Drab Suede Buck, Extra Heavy Padded with best Felt in heel and little finger, forming the Patent Deep Pocket, Web Thumb	1.00
No. 10.	**The "Reach" Men's,** fine Brown Tan Leather, Heavy Padded with best Felt Welted, Web Thumb, Patent Hump and Patent Deep Pocket	1.00
No. 10N.	**Fine Black Tan Leather,** otherwise same as No. 10	1.00
No. 11.	**The "Reach" Men's,** excellent Drab Suede Buck, Heavy Padded with Felt, Patent Hump and Patent Deep Pocket, Web Thumb	1.00
No. 4G.	**The "Reach" Youth's,** excellent Quality Drab Suede Buck, Welted, Padded with best Felt, Patent Hump and Patent Deep Pocket, Web Thumb	1.00
No. 45.	**The "Reach" Men's,** fine Drab Suede Buck, Well Padded, Patent Hump, Patent Deep Pocket, Web Thumb	.75
No. 17.	**The "Reach" Men's,** fine Olive Tan Leather, Well Padded, Leather Lined, Inside Hump and Patent Deep Pocket, Web Thumb	.75
No. 17N.	**Fine Black Tan Leather,** otherwise same as No 17	.75
No. 40.	**The "Reach" Men's,** fine Pearl Tan Leather, Padded extra heavy with good Felt in the heel and little finger, Web Thumb	50
No. 18.	**The "Reach" Men's,** fine Craven Tan Leather, Patent Hump, Leather Lined, Well Padded, Patent Deep Pocket, Web Thumb	.50
No. 18N.	**Fine Black Tan Leather,** otherwise same as No. 18	.50
No. 12.	**The "Reach" Boys',** fine Brown Tan Leather, Well Padded, Patent Hump and Patent Deep Pocket, Web Thumb	.50
No. 24.	**The "Reach" Boys',** fine Pearl Tan Leather, Felt Padded, Patent Hump and Patent Deep Pocket, Web Thumb	.25
No. 24N.	**Fine Black Tan Leather,** otherwise same as No. 24	.25

Nos. 1 to 4G, one in a box, Nos. 40, 18 and 18N, three in a box, Nos. 12, 24 and 24N, six in a box.

CATCHERS' MASKS.

A. J. REACH CO'S.

No. 00.

No. 10

Nos. 20 and 30.

No. 0.

		Each
No. 4U.	**The "Reach" Umpire Mask,** with neck protector, green transparent sunshade, gun metal enameled wires, all joints heavy soldered, special hinged ear protector, well padded	$5.00
No. 3U.	**The "Reach" Umpire Mask,** without neck protector, otherwise same as No. 4U	4.50
No. 00.	**The "Reach" Sun Protecting Mask,** patent sunshade, protects the eyes without obstructing the view, made of finest steel wire throughout, extra heavy gun metal enameled to prevent reflection of light, fitted with molded leather chin strap, special full length patented hair filled leather side pads and head pad, special elastic head band, used by practically all catchers on League, College and Semi-professional teams	4.00
No. 10.	**The "Reach" Neck Protecting Mask,** finest steel wire, extra heavy and gun metal enameled to prevent reflection of light, special full length patented hair filled leather side pads and head pad, special elastic head band, also fitted with a special green transparent sunshade, it affords absolute protection of the neck	3.50
No. 20.	**The "Reach" Special League Mask,** extra heavy steel wire, gun metal enameled to prevent reflection of light, strongly put together, well finished, special length patented hair filled leather side pads and head pad, special elastic head band, special green transparent sunshade	3.00
No. 30.	**The "Reach" Association Mask,** heavy steel wire, gun metal enameled to prevent reflection of light, strongly put together, special patented hair filled leather and canvas side and head pads, special elastic head band, special green transparent sunshade	2.50
No. 0.	**The "Reach" Neck Protecting Mask,** without sunshade otherwise same as No. 10	3.00

Nos. 1, 2.

No. 40.

Nos. 2½, XX.

Nos. 50 and 60.

		Each
No. 1.	**The "Reach" Special League Mask,** without sunshade, otherwise same as No. 20	$2 50
No. 2.	**The "Reach" Association Mask,** without sunshade, otherwise same as No. 30	2.00
No. 40.	**The "Reach" Regulation Mask,** heavy steel wire, black enameled, well padded and extra strong, special elastic head band, special green transparent sunshade	2.00
No. 2½.	**The "Reach" Regulation Mask,** heavy steel wire, bright finish, well padded and extra strong, special elastic head band	1.50
No. 50.	**The "Reach" Amateur Mask,** made full size of steel wire, black enameled, well padded and strongly constructed, special elastic head band, green transparent sunshade	1.50
No. 60.	**The "Reach" Amateur Boys' Mask,** Boys' size, otherwise same as No. 50	1.50
No. XX.	**The "Reach" Amateur Mask,** made in same size and general style as the Association Masks, of lighter bright steel wire, well padded and strongly constructed, special elastic head band	1.00

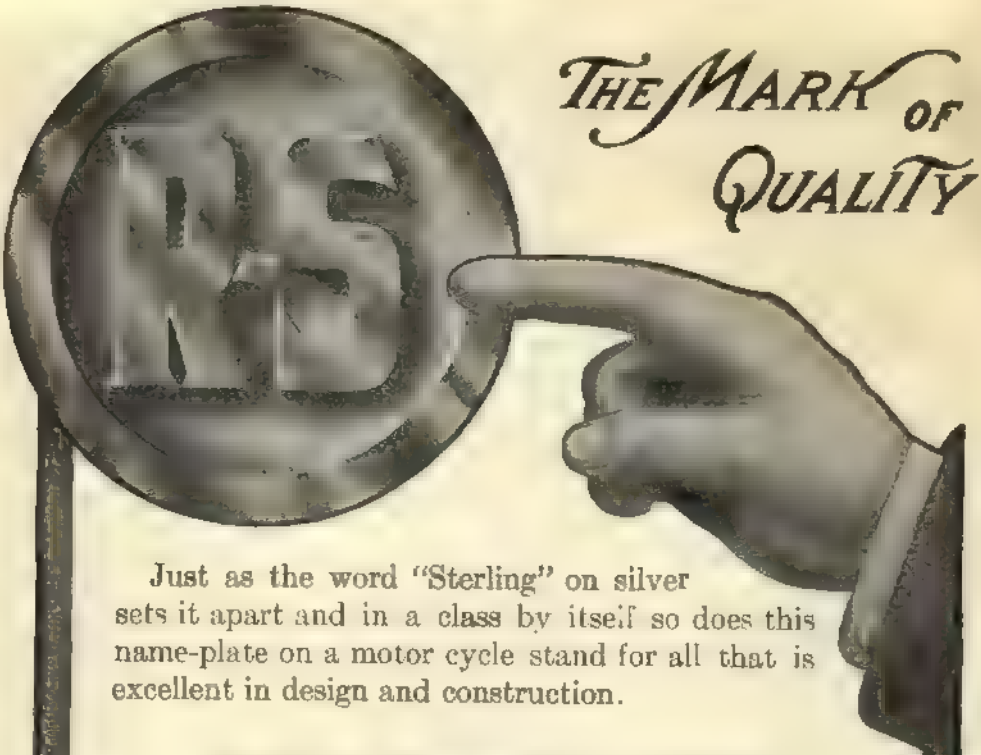
No. X.

No. 3.

No. D.

No. C.

		Each
No. X.	**The "Reach" Amateur Boys' Mask,** boys' size, otherwise same as No. XX	$1.00
No. 3.	**The "Reach" Amateur Men's Mask,** heavy bright steel wire, well padded and finished, no head or chin piece	.75
No. C.	**The "Reach" Youths' Mask,** heavy wire and well padded, without head or chin piece	.50
No. D.	**The "Reach" Youths' Mask,** light wire and well padded, without head or chin piece	25



Just as the word "Sterling" on silver sets it apart and in a class by itself so does this name-plate on a motor cycle stand for all that is excellent in design and construction.

R-S Motor Cycles

Are America's Best Motor Cycles

A broad claim, but one which the machine itself will justify.

If not represented in your town, better write promptly for terms. The "R-S" will prove a profitable investment for you.

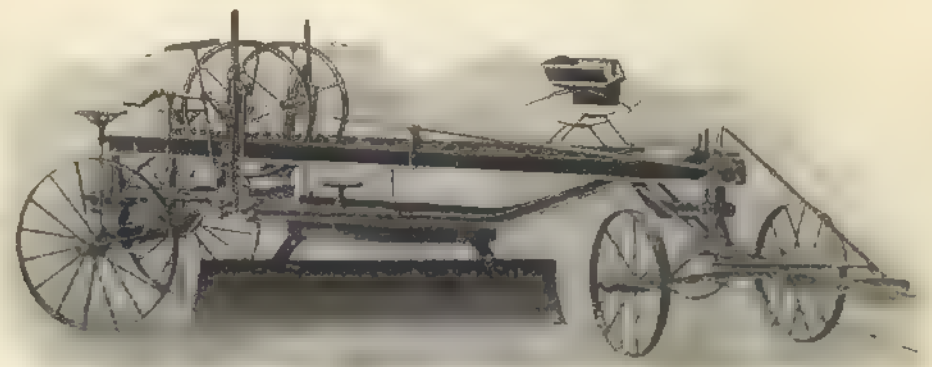
BUILT AND TESTED IN THE MOUNTAINS

READING STANDARD COMPANY

Reading, Pa., U. S. A.

Makers of the Celebrated Reading Standard Bicycles

REVERSIBLE ROAD GRADER



The Scraper Bar or Blade is eight feet in length, the object of which is to enable setting the blade at sharper angles than is possible on other machines, and thus do the same amount of work with less draft, or deliver the earth further when set at the same angle, everything else equal, the draft being the same, greatly increasing the capacity. It also facilitates cutting off high and filling depressions without driving into the earth, the position and curvature are such as to insure a free rolling movement of the earth and perfect scouring.

The blade is locked at two points, instead of one as on other machines, and since the locks always hold the same relative position to the blade, regardless of angle, the blade is always more rigidly fixed to place when set, which contributes largely to steady running and smooth work. The locks are easily and quickly engaged or disengaged by means of hand wheel. The blade may be swung clear around without getting off the machine when it is desired to use the back of the same for leveling or breaking up clods of hard earth, the latter being greatly facilitated by means of the front vertical adjustment of the draw-bar.

The Reversing Ring is very simple, free from all complication, and of large diameter.

The Draw-bars are made of heavy steel angles, pass clear over and back of the reverse ring, and are connected to the rear vertical adjustment levers by means of heavy steel rods.

The Side or Lateral Adjustment of the Blade is accomplished by means of a hand wheel, shaft and sprocket wheel operating on an endless sprocket chain, a quick and absolute lock is provided which takes all strain from the chain.

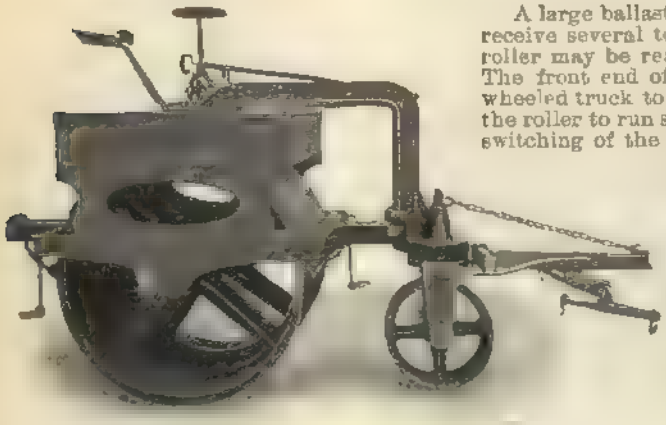
Extension or Shifting Axle arrangement; the axles are all enclosed on all four sides and they are easily and quickly extended to suit the work in hand; they are arranged beside each other, instead of one above the other.

The Vertical Adjustment at Front End of Draw-bar. By its means the blade is placed in absolute control of the operator in almost any angle or position. The point of the blade can be raised or lowered while the same is set parallel with the frame. By raising and lowering the front end of draw-bar the inclination of the blade may be altered to suit the particular kind of soil that is being worked, and this can be done while the machine is in motion. While the front end of draw-bar is adjustable, it is always practically rigid wherever set.

This adjustment also enables the operator to set the blade at more acute angles than on other machines, also raise the blade to full height at very sharp angles for making the first cut in the earth, or set in straight with the king bolt to penetrate hard stony soil; in fact, offers complete control of the blade, either at the point or heel.

Shipping weight about 3,000 lbs. Price, $350.00

REVERSIBLE ROAD ROLLERS



A large ballast box is provided which is strong enough to receive several tons of ballast, so that the original weight of roller may be readily increased two tons or less, if required. The front end of the frame is carried by a roller bearing wheeled truck to which the tongue is attached. This causes the roller to run steadily, obviating jarring of the team, side switching of the tongue or weight on the horses' necks, and gives the team perfect control to guide and turn the roller.

The main roll shaft is stationary and the rolls are in two sections, revolving on the shaft and turning independently of each other, which permits of turning easily in going around a curve or turning off to the side.

The roller is so constructed that the tongue and front truck permit of being turned at full right angles to main roll, and the team to walk right by the roller, thus turning very easily and quickly in a very small side.

This reversible feature is of great value, as it saves the time and power required to turn the roller, and avoids the depressions in the roadbed caused in turning. The driver can reverse the roller without dismounting, the latch or locking lever being within easy reach. The bearing for the reversible draft arm is provided with rollers, which reduces the friction to the minimum.

The brake is effective and operated with a hand wheel convenient to the driver.

No	Weight, Tons	Diameter, Inches	Width, Inches	Price per Ton
[illegible]	4	56	54	$100.00
[illegible]	5	58	54	100.00
[illegible]	6	60	54	100.00

HAND ROLLERS

Outer edges beveled. Turned smooth on face and silver finished.

Weights given are actual.

No	Diameter	Length	No. Sections	Face	Weight	Price
1	15 in.	15 in.	2	[illegible]	100 lbs	[illegible]
2	15 "	22 "	3	[illegible]	200 "	[illegible]
3	20 "	18 "	2	8 "	225 "	[illegible]
4	20 "	20 "	2	10 "	250 "	15.50
6	20 "	24 "	3	8 "	300 "	18 [illegible]
8	[illegible]	30 "	3	10 "	350 "	[illegible]
9	24 "	20 "	2	10 "	400 "	24.50
10	24 "	24 "	2	12 "	450 "	27.50
12	24 "	30 "	3	10 "	500 "	31.50
14	28 "	24 "	3	8 "	550 "	30.50

Can furnish these rollers to weigh 50 to 300 lbs. more than the weights given, for which add 5c. per lb. The extra weights are subject to same trade discount as the rollers.

HORSE ROLLERS

No	Diameter	Length	No. Sections	Face	Weight	Price
80	36 in.	4 ft.	4	12 in.	3,000 lbs	$188.00
81	36 "	5 "	5	12 "	3,500 "	214.00
82	36 "	6 "	6	12 "	4,000 "	240.00
83	48 "	3½ "	3	15 "	4,000 "	248.00
84	48 "	5 "	4	15 "	5,000 "	304.00
85	48 "	[illegible] "	5	15 "	[illegible] "	[illegible]
86	[illegible] "	[illegible] "	3	15	[illegible] "	[illegible]
87	54	[illegible] "	4	[illegible]	[illegible] "	[illegible]
88	54 "	6½ "	5	15 "	10,000 "	600.00

Whiffletrees and neckyoke, $6.00 extra.

SCROLL SAWS.

No. 1.

Japanned, Heavy Braced Cast Iron Frame, Driving Wheel and Treadle; Round Leather Belt; Cast, Adjustable Bed Plate or Rest, 7½ inches Diameter, with Saw Guide; Hardwood Rocking Arms, 20½ inches Long, taking 5 inch Blades, with Wing Screws and Eccentric Lever for Tightening Blades; Automatic Saw-Dust Blower on Upper Arm; Complete with One Dozen 5 inch Blades, 4¾ inch Wrench, Belt Couplings, and Set of Full Size Designs.

For Extra Blades, See Griffin's Bracket Saw Blades, Nos. 1 to 10, Page 294.

No. C1.

ROGERS'.

Each

No. 1—ROGERS'; Height over all 37 inches; Measurement at Base 23 inches Long, 16 inches Wide; Driving Wheel 12 inches Diameter; Steel Shaft with Balance Wheel 5½ inches Diameter; Belt Wheel 12 inches Diameter; and Wing Screw to Hold Drill Points; One Drill Point, Each 3/16, ⅛, and 1/16 inch, included with Each Saw; Weight each about 43 lbs..... $3.50

One in a Wood Box.

No. 45.

COMPANION.

Each

No. C1—COMPANION; With Lathe Attachment; Angular Frame; Height over all 39 inches; Measurements at Base, 25 inches Long, 15 inches Wide; Driving Wheel 13 inches Diameter; with Two Grooves to give a Change of Speed; Steel Shaft with Emery Wheel ⅞ inch Flat Face, 4 inches Diameter; Wing Screw to hold Drill Points; Two Speed Cone Pulleys, 3 inches Diameter; Swing of Lathe 5 inches; Bed 24 inches Long; Distance between Centers 14 inches; One Double Adjustable Tool Rest, 11½ inches Long; and One Single Tool Rest, 4 inches Long; Tail Stock has Screw Feed Center, and can be secured at any point by Clamp; Head Stock has one Spur and One Screw Center.

One Drill Point, Each, 1/16, 5/64, 3/32, ⅛, 5/32 and 3/16 inches; One Turning Gouge, each ½, ⅜ and ¼ inches; One Screw Driver, 5 inches Long, included with each Machine; Weight each about 76 lbs..... $12.00

One in a Wood Box.

Painted; Cast Iron Frame, Balance and Drive Wheels; Plain Finish Hardwood Table and Saw Arms; Steel Arbors and Bearings; 1 inch Leather Belt.

Each

No. 45—BARNES' TREADLE (Factory No. 7); Height over all 44 inches; Length of Table 34 inches; Width 20 inches; Swing around Table, under Arm, 24 inches; Treadle Board, Length 34 inches; Diameter of Balance Wheel 9 inches; Arms, Length 31 inches; Complete with 12 7-inch Tempered and Polished Steel Blades; Assorted Widths as follows: 4 each ⅛, 5/16, ¼ inch; Plain Finish Hardwood Treadle Board; Weight each about 95 lbs....$15.00

One in a Wood Case.

SCROLL SAWS.

No. 51.

Painted; Cast Iron Frame, Balance, and Drive Wheels; Plain Finish Hardwood Table and Saw Arms; Steel Arbors and Bearings; 1 inch Leather Belt.

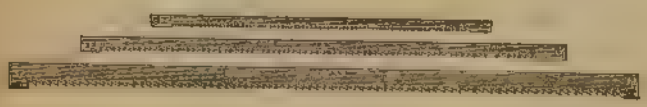
No. 51—BARNES' VELOCIPEDE (Factory No. 2); With Boring Attachment; Height over all 46 inches; Length of Table 34 inches; Width 20 inches; Swing Around Table, under Arm, 24 inches; Diameter of Balance Wheel 9 inches; Diameter of Drive Wheel 21 inches; Saw Arms 31 inches Long; Cranks 5 inches Long; Seat 16 inches Wide; Boring Attachment Belt ⅜ inch, Round Leather; Boring Attachment can be used with Bits any size up to ¼ inch; Complete with 12-7 inch Tempered and Polished Steel Blades; Assorted Widths as Follows: 4 each ⅛, 3/16 and ¼ inch; Painted Cast Iron Seat, Cranks, Pedals and Boring Attachment Arm; Weight each about 130 lbs. $20.00

No. 53—BARNES' VELOCIPEDE (Factory No. 2); Without Boring Attachment; Otherwise same as No. 51; Weight each about 130 lbs... 18.00

One in a Case.

SCROLL SAW BLADES.

For Barnes' Scroll Saws and Barnes' Combined Machines; Tempered and Polished Spring Steel.

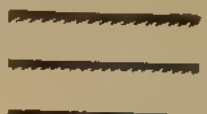


BARNES'.
Scroll Saw Blades

	Per Dozen
1/8 inch Wide; 7 inches Long	$0.65
3/16 inch Wide; 7 inches Long	.65
1/4 inch Wide; 7 inches Long	.65

Weight per Dozen about 2 ozs.
One Dozen in a Package.

BRACKET SAW BLADES.



No. 10B.
No. 8B.
No. 6B.
Cuts Actual Size.

BARNES'.
Bracket Saw Blades.

	Per Dozen
No. 6B—7 inches Long	$0.25
No. 8B—7 inches Long	.25
No. 10B—7 inches Long	.25

Weight per Dozen about ½ oz.
Twelve Dozen in a Package.

BRACKET SAW BLADES.

GRIFFIN'S.

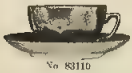
Tempered Spring Steel, Natural Finish; 5 inches Long.

Nos.	1	2	3	4	5	6	7	8	9	10
Per gross	$1.00	1.00	1 00	1.00	1.00	1 00	1.10	1.20	1.30	1 40

One Gross in a Package; Weight per Gross about ½ lb.

ANNIVERSARY AND HOLIDAY CHINA—Continued

5 per cent extra discount allowed when full packages are ordered, 10 per cent on cups and saucers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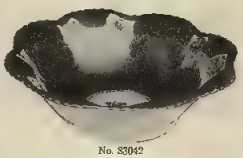
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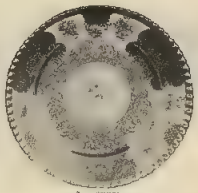
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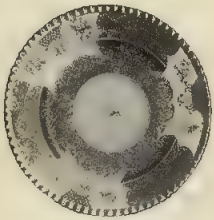
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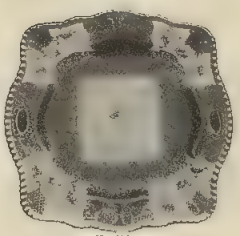
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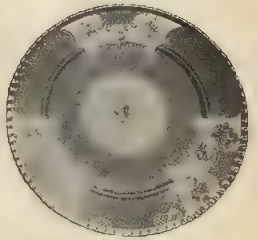

No 83040

Royal Austrian china. Ware richly decorated, cobalt blue underglaze panels with overlace of gold, scattered Dresden spray, broad band of best gold on edge, solid gold handles and knobs

No.								Per doz.
83037	Bread plate, diameter 6	inches,	½	dozen in package				$18 00
83038	" " 7¾	"	½	"	"			27 00
83039	" " 8½	"	½	"	"			30 00
83040	" " 9½	"	½	"	"			36 00
83041	Square cake plate, open handles, rim diameter 9¾ inches, each in package							$48 00
83042	Salad bowl, diameter 10½ inches, each in package							80 00
83110	Tea cup and saucer, ½ dozen in package							39 00
83361	Covered sugar bowl and cream pitcher 1 set in package							80 00

No. 83113

No 83365

No 83114

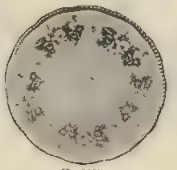
No. 83050

No.83049

No. 83055

No 83364

No 83052


No 83051

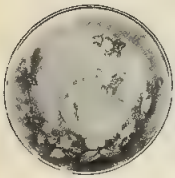
No 83050

Prussian china, fancy shapes, finished edge full ivory tint with sectional border of violets in white and purple, handles, broad band of best gold on edge, solid gold handles and knobs

No.								Per doz.
83049	Coupe plate diameter 6	inches	½	dozen in package				$6 00
83050	" " 7¾	"	½	"				8 00
83051	" " 8½	"	½	"	"			11 00
83052	Open handle coupe cake plate, diameter 10¼ inches, ¼ dozen in package							16 00
83053	Salad bowl, diameter 10¾ inches, ¼ dozen in package							21 00
83054	Spoon tray length 8½ inches, ¼ dozen in package							9 00
83055	Celery tray length 12¾ inches, ⅙ dozen in package							18 00
83056	Fruit saucer diameter 7 inches ½ dozen in package							$6 00
83113	Tea cup and saucer, ½ dozen in package							12 00
83364	Chocolate pot tapering shape 11½ inches high each in package							33 00
83114	Chocolate cup and saucer, ½ dozen in package							12 00
83115	After-dinner cup and saucer ½ dozen in package							8 00
83365	Covered sugar bowl and cream pitcher							24 00

ANNIVERSARY AND HOLIDAY CHINA—Continued

5 per cent extra discount allowed when full packages are ordered, 10 per cent on cups and saucers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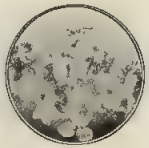
No. 83093


No. 83092

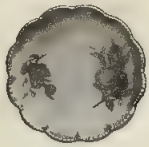
No. 83091

No. 83090

No. 83145

Fine quality of Limoges china, Lanternier Frand, genuine hand painted artist's name on each piece, full spray of moss roses on light and dark green tints blending into delicate pink tones, broad band of best gold on edge, solid gold handles and knobs

No.		Per doz.
83090	Coupe bread and butter plate, diameter 6 inches each in package	$15 00
83091	Coupe plate, diameter 6¾ inches each in package	18 00
83092	" " " 8¼ " "	24 00
83145	Tea cup and saucer, footed, solid gold handle, fully decorated inside and outside. 1/12 dozen in package.	36 00
83093	Coupe plate, diameter 9½ inches, each in package	$30 00
83094	Coupe cake plate, solid gold handles, diameter 11 inches each in package	48 00
83095	Salad bowl, diameter 10½ inches each in package	60 00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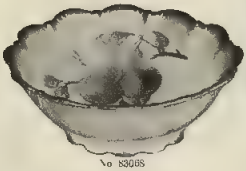
No. 83069

No. 83063

No. 83117

No. 83367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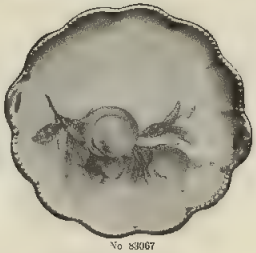
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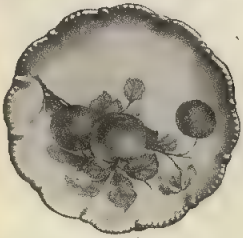
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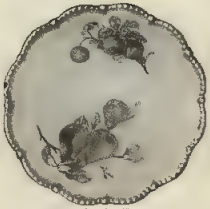
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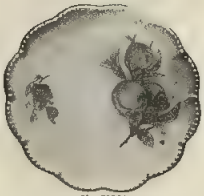
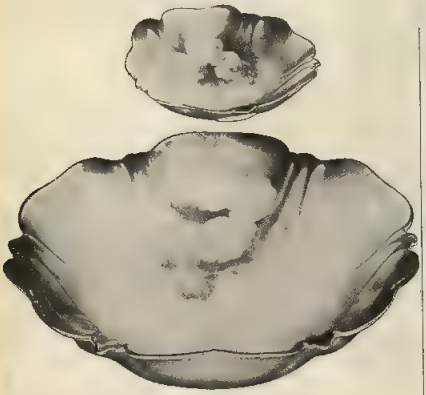

No. 83064

Fine quality German china, fancy beaded edge with large clusters of assorted fruits on stem, pears, peaches, and apples, on background of lustre buff and green blending tones, gold stippling on edge, handles, and knobs

No.		Per doz.
83062	Rim bread and butter plate, diameter 6 inches, ½ dozen in package	$4 00
83063	Rim plate, diameter 6¾ inches ½ dozen in package	7 50
83064	" " " 6¾ " "	6 00
83065	" " " 8¼ " "	8 00
83066	" " " 9¾ " "	12 00
83067	Coupe cake plate, diameter 10 inches, ¼ dozen in package	13 00
83068	Footed salad bowl, diameter 10 inches, ¼ dozen in package	$18 00
83069	Spoon tray, length 9¼ inches, ¼ dozen in package	18 00
83117	Tea cup and saucer, ½ dozen in package	10 00
83367	Covered sugar bowl and cream pitcher ½ dozen in package	18 00

ANNIVERSARY AND HOLIDAY CHINA—Continued

5 per cent extra discount allowed when full packages are ordered, 10 per cent on cups and saucers



No. 82942 Fine china ornamented with beautiful design of La France roses in colors on delicate background, berry bowl and 6 individual berry dishes, diameter of bowl 10½ inches, Per doz. sets $80 00

Royal Bayreuth china, delicate green background with pictures of forest and stream sports in natural colors

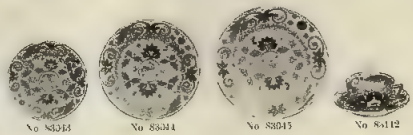
No.				Per doz.
82949	Plate, diameter	6 inches	6 in package, not broken	$4 50
82950	" "	7½ "	6 " " "	9 00
82951	" "	8 "	6 " " "	12 00
83159	Cup and saucer		6 in package, not broken	12 00
83388	Sugar and cream set		6 in package not broken	18 00

No. 83096 No. 83097 No. 83098

Limoges china, Lanternier brand, genuine hand-painted, artistic name on each piece. Large cluster with smaller cluster of violets in 2 colors with leaves on green mottled background. Cream tinted center. Gold line on edge, solid gold handles in angles

No.				Per doz.
83096	Coupe plate, diameter	6½ inches	each in package	$15 00
83097	" "	6¾ "	" " "	16 00
83098	" "	8¼ "	" " "	24 00
83099	Cake plate	11 "	" " "	48 00

No. 83046 No. 83047 No. 83048

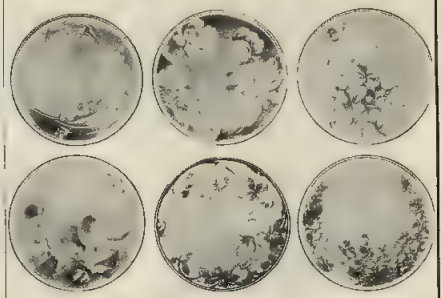


No. 83043 No. 83044 No. 83045 No. 83112

Royal Austrian china, copy of old Crown Derby in Persian colors, underglazed, interspersed with rich gold

No.				Per doz.
83043	Rim soup, diameter	8½ inches	1 dozen in package	$24 00
83044	" "	7¾ "	1 " "	33 00
83045	" "	8½ "	1 " "	39 00
83046	" "	9¾ "	1 " "	42 00
83047	Cake plate	11½ "	1 " "	60 00
83048	Salad bowl	10 "	1 " "	36 00
83112	Tea cup and saucer, solid gold handle, decoration inside and out, 4 dozen in package			48 00

83363 Covered sugar bowl and cream pitcher, solid gold handles and knobs, creamer 3 inches high, sugar 4½ inches high, 1 set in package 78 00



No. 83913

No. 83913 Fine Florentine china Lanternier, painted, 6 artistic designs of flowers and fruits in natural colors, 6 in package, not broken Per doz. $36 00

No. 83389

No. 83389 Black coffee set, Royal Bayreuth china, delicate green background with pictures of forest and stream sports in natural colors, consists of small pot and 2 cups and saucers Per doz. sets 332 00

ANNIVERSARY AND HOLIDAY CHINA—Continued

5 per cent extra discount allowed when full packages are ordered

No. 83055

No. 83067

No. 83356

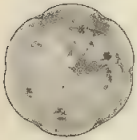
No. 83116

No. 83116

No. 83156

No. 83469

No. 83384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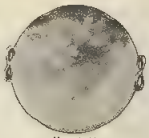
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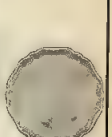

No. 82943

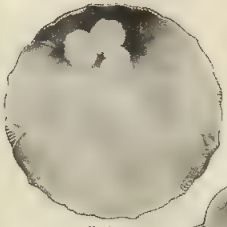
Havarian China festoon shape, hand-painted assorted new fruits, plums, oranges and white grapes and floral sprays on tinted backgrounds of delicate blending shades gold line on edge.

No.		Per doz.
83067	Coupe bread and butter plate, diameter 6 inches, ½ dozen in package	$7 50
83056	Coupe plate, diameter 7 inches, ½ dozen in package	8 00
83059	" " " 8 " " " "	12 00
83069	Cake plate, open handles, diameter 10 inches, ¼ dozen in package	16 00
83081	Salad bowl, diameter 9½ inches, ½ dozen in package	21 00
83356	Covered sugar bowl and cream pitcher, ¼ dozen in package	28 00
83116	Footed tea cup and saucer, ½ dozen in package	21 00

Fine china, delicate cream satin finish, decorated with beautiful designs of yellow and white roses with gold tracing, gold lace ornamentation on darker background around margin, gold edges.

No.		Per doz.
82943	Bread and butter plate, coupe shape, diameter 6½ inches	$16 00
82944	Plate, coupe shape, diameter 9 inches	30 00
82945	Cake plate, open handles, diameter 10½ inches	48 00
83469	Syrup pitcher with saucer	30 00
83384	Sugar and cream set	45 00
83156	Tea cup and saucer	24 00

No. 82940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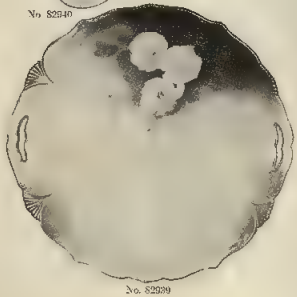
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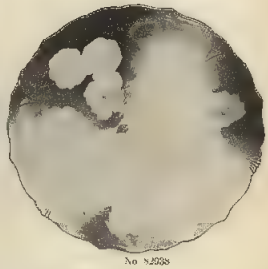

No. 82938

Fine china ornamented with beautiful design of La France roses in colors on delicate background.

No.		Per doz.	No.		Per doz.
82937	Bread and butter plate, coupe shape, diameter 6 inches	$7 50	82940	Spoon tray, length, 9 inches	12 00
82938	Plate, coupe shape, diameter 8 inches	12 00	82941	Celery tray, length, 12 inches	24 00
82939	Cake plate with handles, diameter 9½ inches	18 00	83383	Sugar and cream set	21 00

ANNIVERSARY AND SOUVENIR CHINA—Continued

CUPS AND SAUCERS—Continued

10 per cent extra discount allowed when full packages are ordered, Nos. 83138, 83140, and 83141 excepted. Each 6 in package

No. 83138 Bavarian china Saxon mustache cup and saucer full border at top of roses and leaves assorted fruits on stem on front, gold stipple handle, ½ dozen in package..... $4 00 Per doz.

No. 83139 China cup and saucer large Saxon shape, mustache full border at top of blown lustre flowers, floral spray of roses on stem on front, irregular gold lace border around top gold line on edge, gold stippling on bar and handle, ½ dozen in package ..... $9 00 Per doz.

No. 83140 Royal Wurtenberg china, straight shape cup and saucer, sectional border of clusters of roses and daisies gold lace border on edge, gold stippled handle, 1 dozen in package..... $3 50 Per doz.

No. 83141

No. 83142

No. 83141 Prussian china bellshape cup rich apple green tinting with spray of American Beauty roses on front, inner gold lace border gold line on handles and edges, saucer decorated to match, 1 dozen in package ..... $4 00 Per doz.
83142 Prussian china fancy embossed shape, floral spray of spring beauties in natural colors on front and back, cream tinting on upper half of cup, gold stippling on edge and gold lines on handle ½ dozen in package 5 50

No. 83143

No. 83144

No. 83144 Saxony china cup and saucer on 3 feet full border of roses and daisies with heavy green foliage empire gold trimming, gold lace and gold line on edge inside gold lace border gold lines on handle, gold tracings on feet, 1 dozen in package ..... $6 00 Per doz.

DISPLAY EASELS

TWISTED WIRE, GILT FINISH

3 per cent extra discount allowed when full packages are ordered

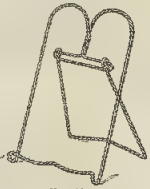
No. 253

No. 431

No. 111

No. 187

No. 428



No. 430

No.		Per doz.
431	For after-dinner cups and saucers, 3 dozen in package	$0 80
432	For regular cups and saucers, 8 dozen in package	90
111	For plates, trays, or salad bowls, 1 dozen in package	90
253	For plates, can be hung in tandem, 6 dozen in package	80

No.		Per doz.
428	For plate, cup, and saucer, 1 dozen in package	$1 40
430	Picture easel, height 6 inches, 1 dozen in package	1 70
187	For after-dinner cups and saucers, 3 dozen in package	80
188	For regular cups and saucers, 1 dozen in package	80

VASES

No. 83415 and 83416

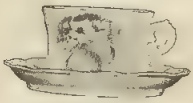
No. 83415 Tephta, decorated with fac-simile of famous paintings in original colors, very handsome, height 6½ inches, 6 in package 2 each of 3 kinds, not broken $4 00
83416 Same as No. 83415, height 8½ inches, 3 shapes in package not broken 8 00 Per doz.

No. 83410 Vase, Royal Bayreuth china delicate green background with pictures of forest and stream sports in natural colors gold edges and handles, height 4½ inches, 6 designs in package, not broken $4 50 Per doz.

ANNIVERSARY AND HOLIDAY CHINA –Continued

CUPS AND SAUCERS

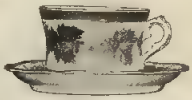
10 per cent extra discount allowed when full packages are ordered, except Nos. 83118 to 83125. Each 6 in package



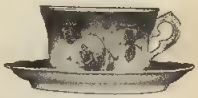
No. 83118

No. 83119

No. — Per doz.
83118 Bavarian china, fancy leaved shape, cluster of fruits and flowers in natural colors on front, gold line on edge and handle . . . $3 50
83119 Royal Wurtemberg china, embossed, small floral clusters of roses and daisies alternately arranged on border, gold on edge, inside spray, stippling on handle . . . 4 00



No. 83128



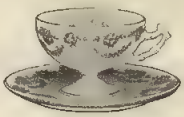
No. 83129

No. — Per doz.
83128 Bavarian china, low tea shape, full border of holly leaves and red berries on green tinted background, band of gold on edge, gold stippling on handle . . . $7 50
83129 Bavarian china, low tea shape, rich cobalt underglaze blue on edge, single rose on stem on front with gold wreath and gold stippling on edge, gold stippled handle . . . 7 50

No. 83121

No. 83122

No. — Per doz.
83121 Bell shape tea size, floral spray on front and back, of roses and lilies of the valley in natural coloring, gold floral sprays at base, gold line on edge and handle . . . $3 50
83122 Low flaring shape, floral spray of roses on stem on front with small spray on back, gold line on handle . . . 3 50



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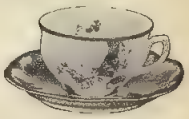
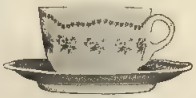


No. 83131

No. — Per doz.
83130 Prussian china footed full border at top of clusters of roses and leaves, scattered gold garlands, gold line on edges and handles . . . $8 00
83131 Thin Austrian china, fancy shape, floral spray of lilies in two colors on front and back, small inside spray, gold stippling on edge and gold lines on handle . . . 10 00



No. 83120

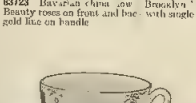
No. 83123

No. — Per doz.
83120 Royal Wurtemberg china, low tea cup shape, embossed, sectional border of roses and daisies in clusters, and gold lace on edge, inside spray, stippling on handle . . . $4 00
83123 Bavarian china, low Brooklyn shape Mignon tea cup, spray of American Beauty roses on front and back, with single rose inside, gold lace border of grapes and leaves, gold line on handle . . . 4 00

No. 83132

No. 83133

No. — Per doz.
83132 Thin Austrian china, extra tea cup and saucer, full border of roses and ferns empire style with gold lace on either side, green band at top with over lace of gold . . . $10 00
83133 Prussian thin china, low fluted shape, tea size, scattered clusters of daisies and forget-me-nots around cup, rich gold stippling and gold lace on edge and rich gold lace at base and inside of cup, gold lines on handle and edges . . . 10 00



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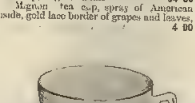
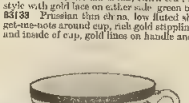


No. 83125

No. — Per doz.
83124 China low tea cup and saucer, tea size, enclosed, fully decorated with scattered sprays of violets and forget-me-nots, gold sprays at top, gold line on edge and handle . . . $4 00
83125 China cup and saucer, extra tea size, low shape, floral spray on front and back of roses and lilies of the valley, two gold lines on edge, gold lace on handle . . . 4 00



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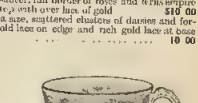
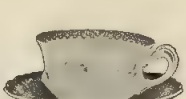


No. 83135

No. — Per doz.
83134 Thin Austrian china Ovide tea cup and saucer, conventional border in green and maroon with single rose buds, in front and at top with over lace of gold, gold line on edges and handle . . . $12 00
83135 Bavarian china Louvre, large spray of pink and yellow roses on front and back connected by fine forget-me-nots, single spray inside, gold stippling on handles and edge . . . 12 00

No. 83126



No. 83127

No. — Per doz.
83126 Austrian china plain footed tea cup, low flaring shape full border of roses on outside, empire style, and rose border inside of cup, gold line on edge and handle . . . $7 50
83127 Royal Austrian china, plain La France shape, floral spray of number roses and white violets on front and back, inside spray with inside gold lace border, gold line on handle . . . 7 50

No. 83136

No. 83137

No. — Per doz.
83136 Austrian thin china cup and saucer, footed, tea size, full border of single roses and leaves with garlands of ferns on either side of border, gold lace on foot and edge, gold line on handle, inside spray . . . $12 00
83137 China embossed mustache cup and saucer, full blown single rose with leaves on front, semi border of gold lace and gold stippling at top, gold stippling on handle . . . 4 00

VASES—Continued

No. 83404

No. 83405

No. 83406

Nos. 83401 to 83403

No. 83417

No. 83418

Teplitz vases, 3 fancy shapes, fancy handles, rich green, brown and burnt orange tinting at base blending into lighter shades at top, floral spray of red roses on front, gold illuminations, gold tracings following embossings.

No.		Per doz.
83404	Height 6 inches ½ dozen in package	$3 50
83405	" 7⅛ " ¼ " " "	7 50
83406	" 8½ " ¼ " " "	8 00

No.		Per doz.
83401	Royal Vienna, hand painted, artist's [illegible] on each piece, cluster of roses in white pink, red, and yellow with small spray on richly tinted background, height 6½ inches ⅛ dozen in package,	$16 00
83402	Same as No. 83401, height 8½ inches, each in package	24 00
83403	Same as No. 83401, height 11½ inches each in package	42 00
83417	Teplitz, cream tint, beautifully decorated all around with fac-simile of paintings by old masters in the original colors, height 10½ inches	16 00
83418	Same as No. 83417 height 12½ inches	24 00

No. 83407

No. 83408

No. 83409

No. 83419

No. 83400

No.		Per doz.
83407	Height 9⅝ inches ⅛ dozen in package	$12 00
83408	" 11½ " ⅛ " " "	24 00
83409	" 14⅝ " $\frac{1}{12}$ " " "	42 00

No.		Per doz.
83419	Same as No. 83417, height 13 inches	$32 00
83400	Japanese china, beautifully decoration of landscape and birds, with rich gold ornamentation, height 9½ inches	144 00

No. 83411

No. 83412

No. 83414

No. 83420

No. 83421

No. 83422

No. 83423

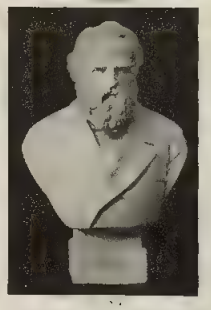
No.		Per doz.
83411	Royal Bayreuth china, delicate green background with pictures of forest and stream sports in natural colors, height 5 inches, 3 assorted in package, not broken	$9 00
83412	Similar to No. 83411, pitcher shape, 3 assorted in package, not broken	9 00
83414	Same as No. 83411, height 9¾ inches	60 00

No.		Per doz.
83420	Vase, copper-finished metal, embossed, tankard shape, height 10½ inches	$12 00
83421	Vase, copper-finished metal, embossed Pompeian design, height 11 inches	12 00
83422	Vase, copper-finished metal, Renaissance style, height 13 inches	12 00
83423	Vase, copper-finished metal, embossed tankard shape, height 16 inches	36 00

STATUARY (PARIAN MARBLE)

In appearance the Parian Marble closely resembles the genuine Italian marble. It should in no case be confounded with alabaster, as it is durable as any porcelain, and is not easily broken. The execution of the different subjects is really very artistic, and the moderate cost places them within reach of people who cannot afford genuine marble.

No. 8500



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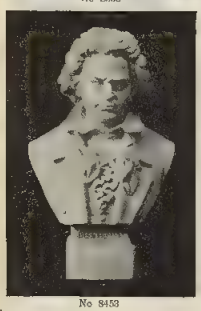


No. 8453

No. 8497

No. 8462

No. 8490

No.		No.		No.		No.	
8451	Ann Hathaway	8452	Diana.	8473	McKinley	8483	Shakespeare (Stratford)
8452	Apollo.	8463	Dickens.	8474	Mendelssohn	8484	Tennyson
8453	Beethoven.	8464	Emerson.	8475	Mercury	8485	Venus de Milo
8454	Burns.	8465	Goethe.	8477	Mozart.	8486	Venus Genetrix
8457	Clytie.	8466	Grant.	8476	Napoleon	8487	Wagner
8458	Cowper.	8467	Handel.	8479	Payne.	8488	Wagner, with cap
8459	Cupid (Boy)	8469	Holmes.	8480	Ruskin	8489	Washington
8460	Cupid (Girl)	8471	Lincoln	8481	Schiller	8500	Roosevelt
8461	Dante	8472	Longfellow	8482	Schumann		

All the above 8 inches in height, at the uniform price of $24.00 per dozen.

No.		Each	No.		Per doz.	No.		Per doz.
8490	Pedestal for above	$1 00	8493	Lincoln	$8 00	8496	Napoleon	$8 00
8491	Beethoven	8 00	8494	Longfellow	8 00	8497	Shakespeare (Stratford)	8 00
8492	Holmes	8 00	8495	McKinley	9 00	8498	Washington	9 00

All 11½ inches in height.

ANNIVERSARY AND HOLIDAY CHINA—Continued

5 per cent extra discount allowed when full packages are ordered. 10 per cent on cups and saucers

JAPANESE CHINA

No. 83102

No. 83101

No. Per doz.

83102 Cup and saucer, fine white china, green border profusely decorated in gold, gold edges 3 in package $18 00

83101 Cup and saucer fine white china, beautifully decorated in gold gold and blue border around rim, gold edges, 3 in package 24 00

No. 83452

No. 83453

No. 83450

No. Per doz.

83452 Pitcher, fine white china, green border, beautifully decorated in gold and floral design in natural colors, height 3½ inches, 3 in package $7 50

83453 Pitcher, fine white china, floral decorations, hand-painted design of roses, gold edges and handle height 4½ inches, 2 in package. 12 00

83450 Syrup pitcher and saucer, fine cream tinted china artistically decorated in gold, gold handle 20 00

No. 83454

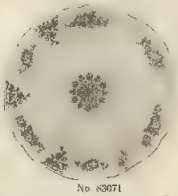
No. 83455

No. Per doz.

83454 Pitcher, fine china, hand-painted floral design in natural colors, gold decoration, gold edge, capacity 1 pint $24 00

83455 Pitcher, fine china hand-painted beautiful floral design, gold edge, capacity 1 quart 36 00

No. 83070



No. 83071

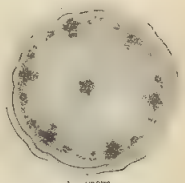
No. Per doz.

83070 Bavarian china, punch shape coupe plate, assorted new fruits in natural colors on stem in center, gold lace border of grapes and leaves on edge, diameter 7¾ inches, ½ dozen in package $4 00

83071 China rim plate, embossed, scattered floral sprays and gold scrolls alternately arranged on flange, gold stamp in center, and gold line on edge, diameter 8¼ inches ½ dozen in package. 4 00

PLATES

No. 83072

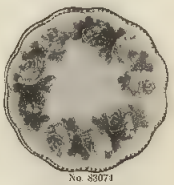


No. 83073

No. Per doz.

83072 China rim plate, fancy embossing on flange, assorted game in natural plumage or landscape background in center, scattered gold stamps on edge, diameter 7½ inches, ½ dozen in package $4 00

83073 China rim plate, full border on flange of roses and lilies-of-the-valley, small spray in center, 2 gold lines on edge, diameter 8½ inches, ½ dozen in package 4 00



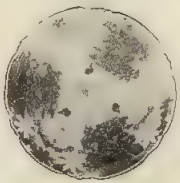
No. 83074

No. 83076

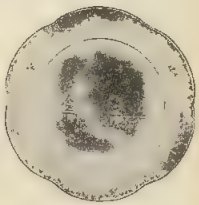
No. Per doz.

83074 Coupe plate, fancy beaded edge, old ivory tinted background full border of large single roses, American Beauty and Mentone, on flange, broad band of gold on edge, diameter 8 inches, ½ dozen in package $8 00

83076 Austrian china plate, fluted festoon edge, inside and outside maroon band with overlace of gold, scattered sprays of roses and leaves, gold lace on edge diameter 7½ inches, ½ dozen in package 7 50



No. 83077

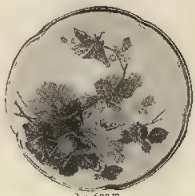


No. 83078

No. Per doz.

83077 China coupe plate, embossed, 3 large roses on stems connected by gold lace, gold wreath on blown lustre flower background, scattered gold sprigs on edge and gold line, diameter 8 inches, ½ dozen in package $7 50

83078 Festoon coupe plate, semi border of fine roses and forget-me-nots on green foliage background connected by small green wreath, Haddon Hall garden scene in center with gold line on edge and stippling in parts, diameter 9¼ inches, ½ dozen in package 12 00



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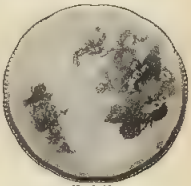


No. 83080

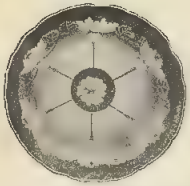
No. Per doz.

83079 Bavarian china, "Louise" shape coupe, large spray of Queen and American Beauty roses on stem in center broad band of gold on edge, diameter 9 inches, ½ dozen in package $12 00

83080 Prussian china, coupe shape, fluted edge, cluster of leaves and nuts in autumnal tints, blending pink and green tones, scattered spider webs in gold, broad band of gold on edge, diameter 8½ inches, ½ dozen in package 12 00

ANNIVERSARY AND HOLIDAY CHINA—Continued

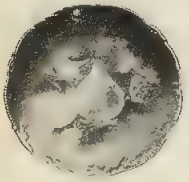
5 per cent extra discount allowed when full packages are ordered



No. 83081

No. 83082

No. — Per doz.
83081 China coupe plate, ornate decoration, of water lilies and leaves, petals and stems defined by gold lines. Art Nouveau style of decoration on red green lustre background, blending tones, gold line on edge, ½ dozen in package . . . $12 00
83082 Bavarian china coupe plate punch shape, overturned basket of gooseberries in natural coloring on richly tinted light and dark green blending tones with buff tinting in parts, broad gold band on edge, diameter 9¾ inches, ½ dozen in package . . . 15 00



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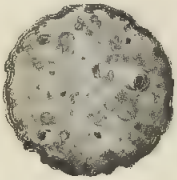
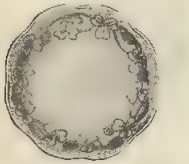
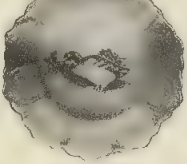


No. 82946

No. — Per doz.
83083 Bavarian china, embossed shape, large cluster of fruit in natural colorings on mottled brown and green background, gold leaves and gold scrolls following embossing of china, heavy gold on edge, diameter 9½ inches, ½ dozen in package . . . $16 00
82946 Plate coupe shape, Royal Bayreuth china, tapestry finish, decorated with design of roses and leaves hand painted in natural colors, gold edges, diameter 9, ½ inches . . . 24 00

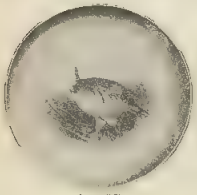


No. 83014



No. 82997

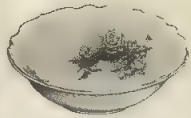
No. — Per doz.
83014 Fine china, hand painted design of sweet peas covering inside rim, black and gold band, gold and green on polished gold edge, diameter 9 inches . . . $48 00
82997 Bavarian china game plaques, pieces shape, assorted gaits in natural colored plumage and ferns pictures on landscape background, green and brown tints blending into buff shades, gold line on edge, diameter 8¾ inches, ½ dozen in package . . . 8 00



No. 82999

No. 82952

No. — Per doz.
82999 Royal Bonn game plaques, assorted birds in natural plumage on landscape background, green tinting on edge, diameter 10½ inches, ½ dozen in package . . . $10 00
82952 Mayonnaise dish with tray, small size, ½ dozen in package, not broken . . . 4 00
82953 Same as No. 82952 medium size, ½ dozen in package . . . 8 00
82954 Same as No. 82952, ½ dozen in package . . . 16 00



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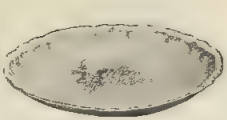
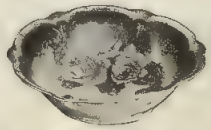
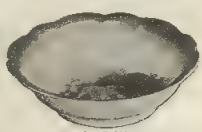


No. 83087

No. — Per doz.
83084 China salad bowl, fancy shape, embossed, large floral spray of lilacs in two colors on stem, scattered gold roses, gold stamps on edge, diameter 9½ inches, ½ dozen in package . . . $5 00
83087 Oval salad, embossed, large floral spray of white and blue lilacs with smaller sprays at side, gold spray wreath and gold stamps on flange, gold line on edge, length 11½ inches, ½ dozen in package . . . 12 00

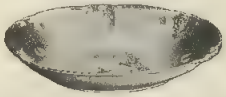


No. 83085



No. 83086

No. — Per doz.
83085 Bavarian china, fancy shape, scallop edge, cluster of fruits in natural colorings in center, rich dark brown tinting on edge and gold line, diameter 9 inches, ½ dozen in package . . . $8 00
83086 Bavarian china, embossed, large spray of Queen and American Beauty roses at side, apple green tint on flange with lighter green tint on edge, gold tracings and gold lines following relief on china, scattered gold sprays, gold stippling in parts on edge, and gold line, diameter 10½ inches, ½ dozen in package . . . 10 00



No. 83088 Per doz.
83088 China oval salad, green, brown, and buff rich tinted background, floral spray of blush roses and lilacs in center with two smaller sprays on either side, gold lace wreath and gold medallions on flange, gold stippling in parts on edge and gold line, length 11¾ inches, ½ dozen in package . . . $16 00

No. 83089 Per doz.
83089 Oval salad with pierced handle at each end, large cluster of American Beauty roses and ramblers on either side, garden landscape in medallion form defined by gold lace and gold line, rich green luster body with gold lines following outline of china, scattered gold stamps, gold line on edge, length 13 inches, ½ dozen in package . . . $24 00

No. 83368 Per doz.
83368 China covered sugar bowl and cream pitcher, embossed, single rose on stem on front, scattered gold sprays at top, gold line on edge, ½ dozen in package . . . $4 00

No. 83372 Per doz.
83372 Austrian china, fluted sugar bowl and cream pitcher, floral spray of lilacs and leaves on front on buff tinted background, gold tracings following relief of china on front, gold line on edge, gold lines on handles, ½ dozen in package . . . $7 50

TRADE MARK "RUN EASY," REGISTERED

CORN SHELLERS.

Showing Sheller attached to Box.

RUN EASY*.

Each

No. R—RUN EASY*, Cast Iron, Japanned; To Bolt or Screw to Box; Hardened Bearings; Height over all 11¼ inches; Width over all 10 inches; Adjustable Hopper or Throat, Width 3 inches; Depth 3½ inches; Pressure Regulated by Heavy Wire Coil Spring; Diameter of Shell Wheel 8 inches, Studded with ⅝ inch Teeth; Length of Crank 7¼ inches; Will Shell all sizes of ears from Pop Corn to large field Corn, throwing out the Cobs; Weight each about 12 lbs. $2.00

Six in a Crate.

Showing Sheller attached to Bin or Box.

PATCH'S BLACK HAWK.

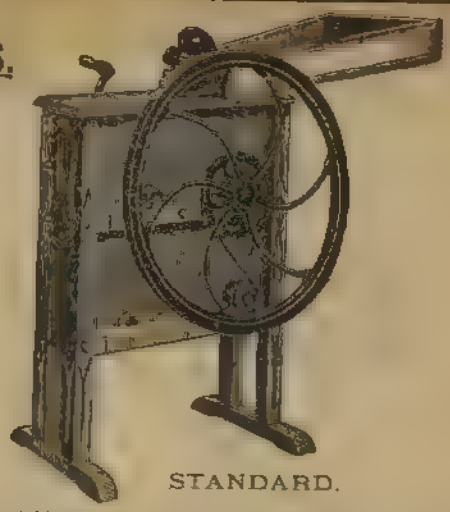
Each

No. 1903—PATCH'S BLACK HAWK (1903 Model), Cast Iron, Japanned; Hardened Bearings; Fastened to Bin or Box by two Clamps; Height over all 12 inches; Width over all 10 inches; Adjustable Hopper, Width 3½ inches; Depth 4 inches; Pressure Regulated by a No. 10 Gauge Wire Coil Spring; Steel Axle, with 4 inch Bearings; Diameter of Shell Wheel 8¼ inches, Studded with ⅝ inch Teeth; Length of Crank 11 inches; Will shell clean all kinds of field Corn and throw out the Cobs; Weight each about 19 lbs. $3.00

Six in a Barrel.

‡No 1902—PATCH'S PONY. (1902 Model). Malleable Iron, Japanned; Hardened Bearings; Fastened to Bin, Box, Barrel or Tub by Two Clamps; Height over all 10 inches; Width over all 8½ inches; Adjustable Hopper, Width 3¼ inches; Depth 4 inches; Pressure regulated by a No. 9 Gauge Wire Coil Spring; Diameter of Shell Wheel 7¼ inches, Studded with 9/16 inch Oval Teeth; Length of Crank 8¾ inches; Steel Shaft with Bearing 4½ inches; Two Extra Fastening Clamps furnished with each Sheller; Will shell clean all kinds of field Corn and throw out the Cobs; Weight each about 14 lbs 2.00

Twelve in a Barrel.



STANDARD.

Hardwood Varnished Frame; Body Painted Red, Black Striped; Extreme Height, without Table, 42 inches; Width at Top 3½ inches; Width on Floor 17½ inches; Legs 1⅞x1⅝ inches; Bottom Cross Piece 1⅞x2 inches; Diameter of Balance Wheel 26 inches; Diameter of Shell Wheel 16 inches; Opening of Hopper 5 inches; Length of Crank 13 inches; Capacity 8 to 12 Bushels per hour.

Each

No. E—Without Fan or Table; Weight each about 105 lbs. $9.00

No. F—With Fan and Table; Length of Table 24½ inches; Depth 3½ inches; Extreme Width 14 inches; Fastened to Frame by Two "S" Hooks; Weight each about 120 lbs. 10.00

One in a Crate.

Showing Sheller attached to Bin or Box.

RED CHIEF.

Each

No. RC—RED CHIEF, Cast Iron, Japanned; Fastened to Bin, Box, Barrel, Bucket or Tub by Two Clamps; Height over all 10 inches; Width over all 8 inches; Adjustable Hopper, Width 3½ inches; Depth 4 inches, Pressure regulated by a No. 10 Gauge Wire Coil Spring; Diameter of Shell Wheel 7¼ inches, Studded with ½ inch Oval Teeth, which will not crack the grains; Length of Steel Axle Bearing 4½ inches; Length of Crank 9½ inches; Will shell clean all kinds of field Corn and throw out the Cobs; Weight each about 11 lbs $2.50

Six in a Box.

No. RCP—Pop Corn Attachment, for Red Chief Corn Shellers, Cast Iron, Japanned; Extreme Height 7⅝ inches; Width 6⅞ inches; Attachment is applied by removing Wheel and Axle from Hub, putting the Attachment inside of Frame over the Hub, after which Wheel and Axle are replaced; Weight each about 1½ lbs. .50

Packed Loose.

‡Goods marked thus (‡) are not carried in stock, and can only be furnished by shipment direct from factory.

TRADE MARKS, "RUN EASY" AND "UTILITY" REGISTERED

SEED SOWERS.

Hardwood Base 11 inches Long, 6 inches Wide, Painted Red, with Curved Breast Piece; Wide Tape Shoulder Strap White Duck Bag Tacked to Base, Capacity about one-half Bushel; Heavy Cast Distributing Wheel 9¼ inches in Diameter, with Five Arms; 8 inch Crank, Adjustable Feed, with Spring Stop; All Castings Iron Japanned; Hardwood Handles.

RUN EASY*. Per Dozen

No. 6—RUN EASY*, Spiral Screw Rotary Gear, Ball Bearing Gear Wheel 3 inches Diameter; Weight per dozen about 36 lbs. $25.00

UTILITY*. Per Dozen

No. 1—UTILITY*, Regular Rotary Gear Large Gear Wheel 6 inches Diameter, Weight per dozen about 48 lbs.....$20.00

One-twelfth Dozen in a Paper Box, One Dozen in a Case.

Nos. 1 and 6 Seeders will sow Seed in a radius of about as follows Wheat, 50 feet, Rye, 50 feet; Clover, Flax **or Millet, 40 feet; Grass Seed; 24 to 36 feet.**

Hardwood Base 18 inches Long [illegible] inches Wide cut in to fit against Body of Uses Hardwood Cross Brace and Bent Spring Arm Painted Red White Tape Shoulder Strap White Duck Bag tacked to Base Capacity about One half Bushel, No. [illegible] Gear [illegible] Distributing Wheel 10½ inches in Diameter, in Four Sections, Riveted together and well Braced; Adjustable Feed, with Spring Stop; Self-Agitating Feed Plate; All Castings Malleable Iron; Hardwood Handles.

CYCLONE. Per Dozen

No. 7—CYCLONE; Regular Rotary Gear; Large Gear Wheel 3¼ inches Diameter, Crank 6 inches Long, Weight per dozen about 35 lbs..$30.00

CHICAGO. Per Dozen

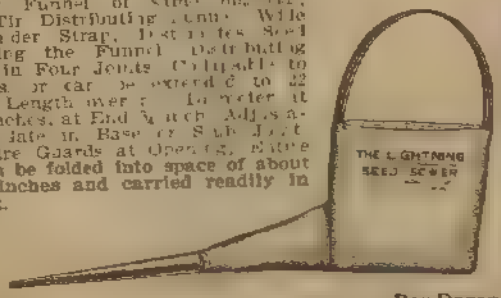
No. 8—CHICAGO, Steel Bow and Belt Movement. Bow 31¼ inches Long, with Spring Clamped Hardwood Handles at Ends Leather Thong or Belt, Weight per dozen about 40 lbs... ..$25.00

One Dozen in a Crate

NOTE—Breadth of Cast will be in Proportion to Weight of Seed or Grain but ordinarily it will be as follows Wheat or Rye, 40 to 50 feet, Barley, 35 to 40 feet, Hemp 35 to 40 feet, Oats 25 to 30 feet, Clover Millet Alfalfa and Hungarian, 25 to 30 feet; Timothy, 18 to 22 feet; Blue Grass, 12 to 15 feet

LIGHTNING

Select White Duck Bag 15½ inches Long 14 inches Deep, with 11 inch Extension or Funnel of same material, sewed to Tin Distributing Funnel Wide Tape Shoulder Strap, Destinies Steel by Swinging the Funnel Distributing Funnel is in Four Joints Collapsible to 1½ inches or can be extended to 22 inches in Length over [illegible] Diameter at Base 1¼ inches, at End ¾ inch Adjustable Feed Plate in Base or Small Joint Tinned Wire Guards at Openings, Entire Seeder can be folded into space of about 11x2½x2 inches and carried readily in the pocket.



Per Dozen

No. 9—LIGHTNING; Weight per dozen about 9½ lbs. $15.00

One Dozen in a Wood Box.

CAHOON.

Wide Tape Shoulder Strap, White Duck Bag Laced to Hopper Hopper [illegible] inches Wide [illegible] inches Long at Top Capacity 22 Quarts Japanned Malleable [illegible] Castings Beveled Intermediate Gears Large Driving Gear, 8 inches in Diameter.

NOTE—Breadth of Cast will be in Proportion to Weight of Seed or Grain but ordinarily it will be as follows Wheat or Rye [illegible] to 7[illegible], Barley [illegible] to 35, Hemp 27 to 3[illegible], Oats [illegible], Millet Alfalfa Hungarian [illegible] to [illegible], Timothy [illegible] to 18, Blue Grass [illegible] to 12

Per Dozen

No. 5—Japanned Sheet Steel Tapering Hopper and Breast Plate; Breast Plate [illegible] inches; Stamped Brass Distributing Funnel, with Four Partitions; Front Diameter 5¼ inches; Adjustable Large and Small Feed Gates Hardwood Handle; Weight per dozen about 72 lbs $60.00

One-half Dozen in a Wood Box.

The

Short Focal Distance

of the Lens Mirror in the

Rushmore Searchlights

is indicated by the position of the burner

Notice how far back it is. Compare it with the burner position in any of the imitations. And remember that the Rushmore Lens Mirror is **larger,** for equal diameter of shell, than any other, and is made of the toughest annealed lead glass, which stands the heat.

That is why Rushmore Lens Mirrors project the **most** light, project it **farthest,** and **last longer** than any others. And the rest of Rushmore construction is like the lens.

RUSHMORE DYNAMO WORKS

PLAINFIELD, NEW JERSEY

LONDON PARIS CHICAGO

The Trend in Lighting Equipment

is all toward the use of larger lamps of the highest possible efficiency and the longest range. It is only with such equipment that night motoring becomes a pleasure and relaxation instead of a risk.

The motorist who carries large-size Rushmore Headlights, Searchlight and a Rushmore Generator, properly piped, enjoys a steady and abundant flood of light. He drives with safety as fast at night as by day.

Rushmore Dynamo Works

Plainfield, New Jersey, U. S. A.

SADDLE POCKETS.

RUSSET LEATHER.

	Per Pair
No. 304L—Saddle Pockets, 8½ inches Wide, 13 inches Deep; Black Llama Skin Flap; Pocket Bags 7 inches Wide, 7½ inches Deep	$5.00
No. 305L—Saddle Pockets; 9½ inches Wide 14½ inches Deep; Black Llama Skin Flap; Pocket Bags 8 inches Wide, 8½ inches Deep	7.00
No. 308L—Saddle Pockets, 11 inches Wide, 18½ inches Deep; Black Llama Skin Flap; Pocket Bags 9 inches Wide, 9½ inches Deep	$9 00
No. 309L—Saddle Pockets; 11 inches Wide, 19½ inches Deep; Black Llama Skin Flap; Pocket Bags 9½ inches Wide, 16 inches Deep	11.50

Weight per Pair about 5 lbs.

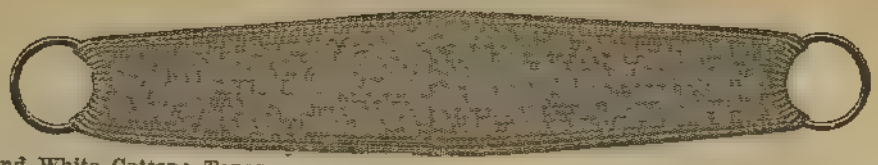
LEATHER SADDLE BAGS.

	Per Dozen
No. 402—Solid Russet Leather Center; Duck Lined Russet Leather Bag, Sewed on Leather Round Patent Leather Flaps, Duck Lined; Round Handles 10 inches Deep, 13½ inches Wide, Weight per dozen about 36 lbs.	$100 00
No. 401—Solid Russet Leather Center; Duck Lined Russet Leather Bag, Sewed on; Plain Patent Leather Flaps, Duck Lined Round Handles; 10 inches Deep, 13½ inches Wide, Weight per dozen about 30 lbs.	$76 00
No. 400—Spliced Russet Leather Center; Duck Lined Russet Leather Bag, Sewed on Plain Patent Leather Flaps, Strap Handles; 9 inches Deep, 12½ inches Wide, Weight per dozen about 25 lbs.	$64.00

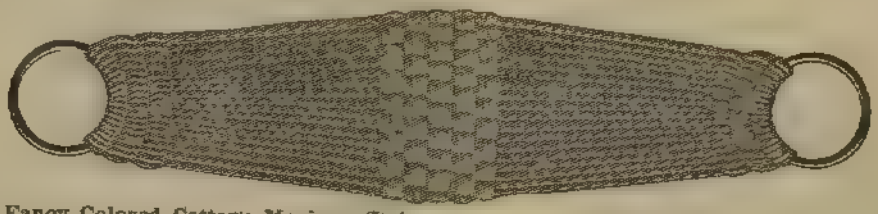
Packed Loose.

—1862—

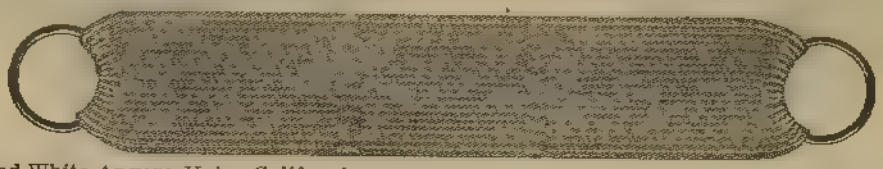
SADDLE GIRTHS.



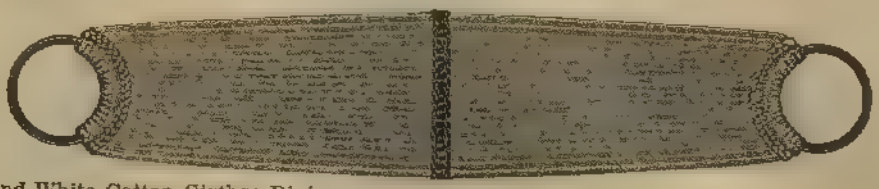
	Per Dozen
No. 160—15 Strand White Cotton; Texas	$2 30
No. 161—20 Strand White Cotton; Texas	2.50
No. 163—20 Strand Soft Gray Hair; Texas	3.50
No. 164—27 Strand Soft Gray Hair; Texas	4.40
No. 180—14 Strand Huntsville Extra Heavy White Cotton; Texas	3.20
No. 181—20 Strand Huntsville Extra Heavy White Cotton; Texas	4.00



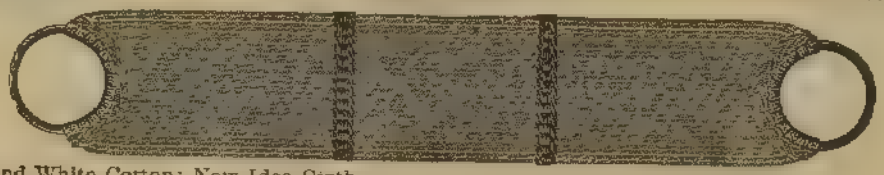
	Per Dozen
No. 165—4 inch Fancy Colored Cotton; Mexican String	$3 00
No. 166—5 inch Fancy Colored Cotton; Mexican String	3.50
No. 167—6 inch Fancy Colored Cotton; Mexican String	4.00
No. 168—4 inch Soft Gray Hair; Mexican String	3.00
No. 169—5 inch Soft Gray Hair; Mexican String	3 50
No. 170—6 inch Soft Gray Hair; Mexican String	4.00



	Per Dozen
No. 171—12 Strand White Angora Hair; California	$4.50
No. 172—15 Strand White Angora Hair; California	4.80
No. 173—18 Strand White Angora Hair; California	5 00
No. 174—20 Strand White Angora Hair; California	5.20
No. 175—24 Strand White Angora Hair, California	6 50
No. 184—15 Strand, 4 Cord, White Hard Hair; California	7.50
No. 186—18 Strand, 4 Cord, White Hard Hair; California	8 50
No. 188—20 Strand, 4 Cord, White Hard Hair; California	10.00
No. 190—24 Strand, 4 Cord, White Hard Hair; California	13.00
No. 122—20 Strand Soft Gray Hair; California	5.50



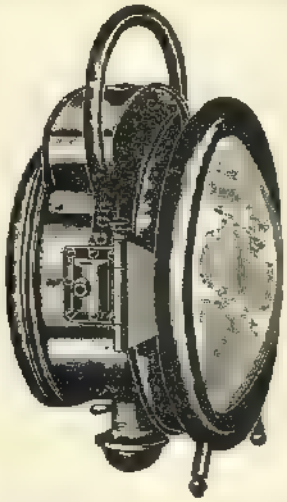
	Per Dozen
No. 176—20 Strand White Cotton Girths; Dixie	$3.50



	Per Dozen
No. 177 30 Strand White Cotton; New Idea Girth	$6.80
No. 178—58 Strand White Cotton; New Idea Girth	7.50

All the above Girths are 28 inches Long, with 3 inch Japanned Wrought Ring in Each End.
One Dozen in a Package, Weight per Dozen about 8 lbs.

1908 MODEL



Number 400 Catalogue by Request

SAXON LAMP CO.
530 W. 28th St., New York

"EISEMANN"
MAGNETOS
Win Again
IN
SAVANNAH RACE
MARCH 19th, 1908
Isotta Fraschini—FIRST
Acme—THIRD
Both Equipped with the
"Eisemann Magneto"
Of the FIVE CARS that finished the race THREE were equipped with
"Eisemann Magnetos"

LAVALETTE & CO., 112-114 W. 42d Street, NEW YORK CITY

BRUSH
Runabout

¶ More people want, and have the money to buy, the Brush Runabout than any other car in America.

¶ A Prediction: Inside of a year, the single cylinder vertical will be as great a craze in this country as it is now in France and Europe.

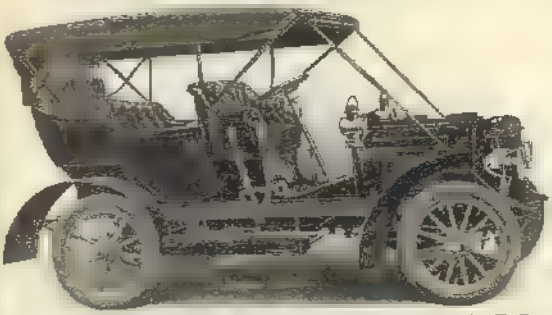
¶ The Brush is the first of the new style singles. Common sense always wins.

Brush Runabout Co.
DETROIT, MICH.

Bantam Anti-Friction Company

BANTAM, CONN.

BALL BEARINGS



LANE
STEAMER

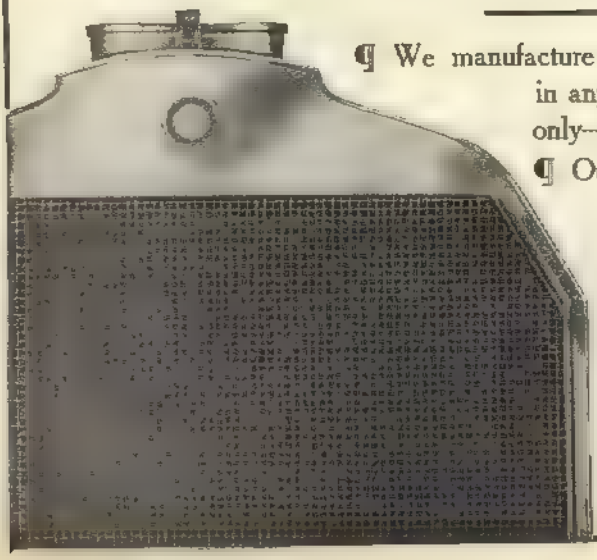
Price, $2000, Without Top
LANE SALES CO.
514-518 W. 145th Street, N. Y.
A STEAMER THAT IS RELIABLE
4 MODELS

LANE MOTOR VEHICLE CO., Poughkeepsie, N. Y.

LIVINGSTON RADIATOR COMPANY

FACTORY AND SALESROOMS

6 East 31st Street, New York City



¶ We manufacture Radiators of any Shape, in any Quantity, in One Manner only—the BEST.

¶ Our Patented Tubes enable us to GUARANTEE the Greatest Efficiency and Freedom from Leaks.

¶ We fit Old Frames with our Tubes.

¶ Our prices are the Lowest per foot of Radiation.

Correspondence Solicited

TOYS—Continued

SCHOENHUT'S HUMPTY DUMPTY TOYS

The figures are made of wood, jointed similar to a doll, but much stronger, very neat and attractive in appearance, and almost unbreakable, the heads, arms, and legs are movable, so that the figures can be set in an endless variety of positions, producing the most fascinating and grotesque results

No. 86706 No. 86707

No. 86708

No. 86712

No. 86709

No.		Per doz.
86706	Contains 4 pieces, size of box 4½x12	$6 60
86707	" 4 " " " 6x13	19 20
86708	Contains 5 pieces, size of box 12x14	24 00
86709	Contains 7 pieces, size of box 11x20	$45 00
86712	" 4 " " " 8x13	28 00

No. 86710

No. 86713

No 86711

No.		Per doz.
86710	Contains 12 pieces, size of box 12x20	$43 80
86713	Contains 6 pieces size of box 12x20	356 00
86711	Contains 15 pieces, size of box 18x24	366 00

GROTESQUE WOOD ANIMALS, PAINTED IN BRIGHT COLORS

No 86585

No.		Per doz.
86585	Dog, jointed head and legs, length 8 inches	$8 00

No. 86586

No.		Per doz.
86586	Camel on wheels, height 12 inches	$16 00

No 86587

No.		Per doz.
86587	Jointed elephant on wheels, height 11 inches	$16 00

No 86589

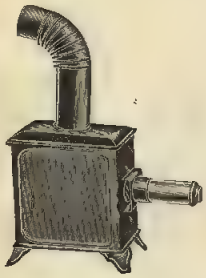
No.		Per doz.
86588	Jointed rabbit on wheels, height 10 inches	$16 00
86589	Jointed mule, height 10½ inches	$18 00

No 86588

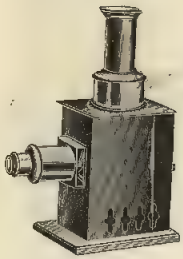
TOYS Continued

MAGIC LANTERNS

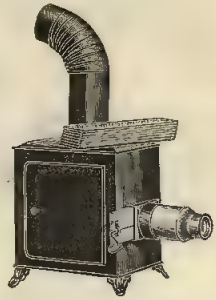
Each in box



No. Per doz.
86053 Black Russian iron body, size 3¼x3½ inches, black smoke stack, 3 glass slides, good lens, height 8½ inches 34 50
86054 Heavy black Russian iron body, 4¼x4⅝ black curved smoke stack, bronzed feet, strong lens 6 glass slides, height 9 inches 8 00
86055 Same as above size of body 5¼x5¾ inches, entire height 11½ inches, 12 glass slides 16 00

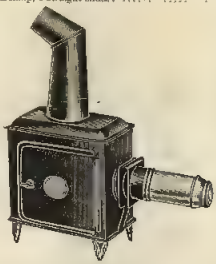


No. Per doz.
86297 Russian tin, square shape, size 6x5x2½ inches glass oil lamp, 6 straight slides 38 00

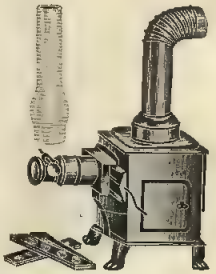


No. Per doz.
86056 Heavy black Russian iron body, size 5¼x5¾ inches, 12 glass slides, height 12¾ inches, each in box . . 324 00
86057 Extra heavy black Russian iron body, size 5x5¾ inches, extra quality lens, with thumb screw for focusing, 12 glass slides, height 13¾ inches 24 00

No. Per doz.
86295 Upright with gun metal body, nickelled trimmings mounted on a platform, packed in a wood show box with 6 slides, height 9 inches $16 00
86296 Same as 86295, 6 straight and 3 round slides, height 11½ inches 24 00

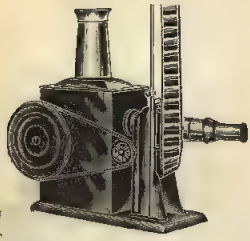


No. Per doz.
86298 Russian iron body size 5½x5x3 extra quality lens, 12 glass slides, each in partitioned box . . . 330 00
86299 Same as No. 86298, size 6x5¾x3½ 48 00
86300 Square shape, black Russian iron, lens is fastened by pedestal to base of lantern, each lantern packed in a box with 1 dozen straight slides in a small partition case size 8½x6¼x3½ 66 00

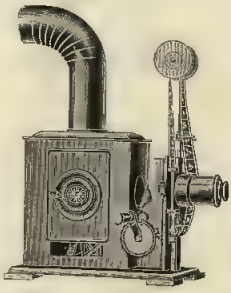


No. Per doz.
86058 Extra heavy black Russian iron body size 6x6½ inches, extra quality lens, with thumb screw for focusing, 12 glass slides, height 15 inches 336 00
86059 Same as No. 86058 with large size duplex burner size of body 5½x6 inches, height 15¾ inches 12 slides 72 00

CINEMATOGRAPHS



No. Per doz.
86301 Black Russian iron, size 7x6½x5, 6 straight glass slides and 3 films 372 00
86060 Cinematograph made of heavy Russian sheet iron with adjustable film lighter size of body 5¼x7¼ inches 12 slides 3 films, height 14 inches 90 00



No. Per doz.
86302 Made of heavy Russian sheet iron with adjustable film lighter size of body 9 inches by 4½ inches, 12 slides, 3 films height 7 inches $108 00
86303 Same as No 86302 size of body 9 x5 inches, height 8 inches with 12 slides and 6 films 162 00
86304 Same as No 86302, size of body 11x7 inches, height 10 inches, has duplex burner 12 slides and 3 photographic films 432 00

EXTRA SLIDES FOR MAGIC LANTERNS

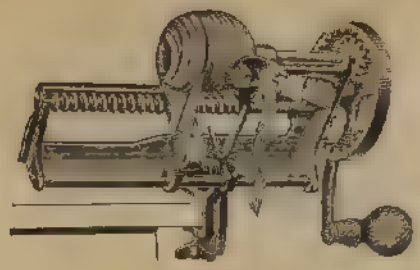
1 dozen in box

No.	Width		Per doz.
86308	" 1⅜	"	$0 30
86309	" 1⅝	"	50
86310	" 1¾	"	60
86311	" 2	"	1 00
86312	" 2¾	"	1 20
			1 50

EXTRA FILMS FOR CINEMATOGRAPHS

No. Per doz. sets
86305 Lithographic films, 3 rolls in set $12 00
86306 Photographic films, 3 rolls in set 24 00

APPLE PARERS.

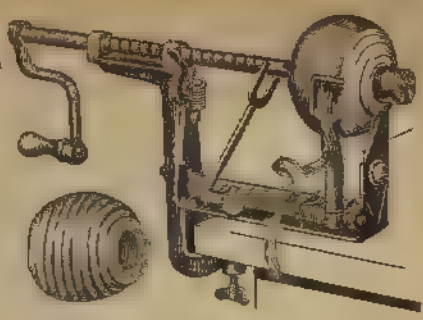


BAY STATE.

Per Dozen

No. 1—PARER, CORER AND SLICER; Cast Iron Frame and Gear; Enameled Wood Handle; Steel Threaded Feed Shaft; Tempered Blue Finish Steel Adjustable Knives; Brass Coil Spring on Knife Arm; Finished throughout with Rust-Proof Blue Lacquer; Length over all 9 inches; Height over all 9 inches; Weight per dozen about 30 lbs. $20.00

One-half Dozen in a Case.

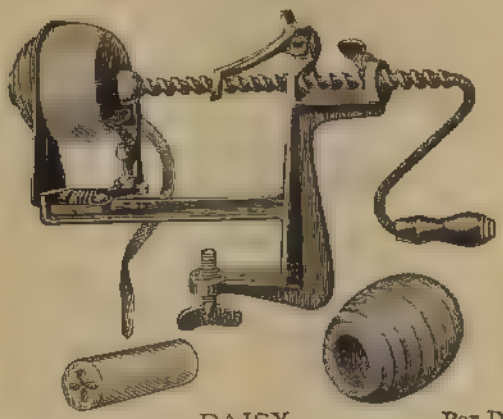


WHITE MOUNTAIN.

Per Dozen

No. WM—PARER, CORER AND SLICER; Cast Iron Frame, with Automatic Push-Off; Steel Threaded Feed Shaft, Cast Iron Crank; Black Finish Wood Handle; Tempered Blue Finish Steel Adjustable Knives; Brass Coil Spring on Knife Arm and Feed Lever; Finished throughout with Rust-Proof Blue Lacquer; Length over all 9 inches; Height over all 6½ inches; Weight per dozen about 25 lbs $7.25

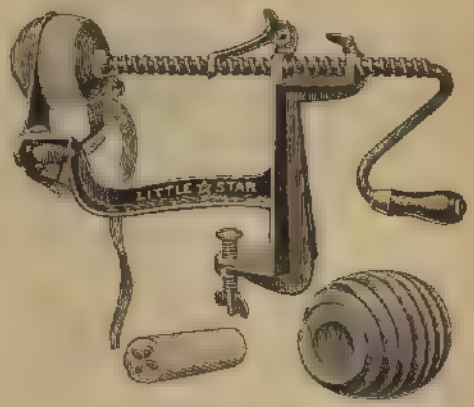
One Dozen in a Case.



DAISY.

Per Dozen

No. D—PARER, CORER AND SLICER; Cast Iron Frame, with Push Off; Tinned Steel Threaded Feed Shaft and Crank; Enameled Wood Handle; Tempered Blue Finish Steel Adjustable Paring Knife; Tempered Tinned Steel Coring and Slicing Knife; Coppered Steel Wire Coil Spring on Paring Knife Arm; Finished in Rust-Proof Blue Lacquer; Length over all 9 inches; Height over all 6 inches; Weight per dozen about 20 lbs. $5.75



LITTLE STAR.

Per Dozen

No. LS—PARER, CORER AND SLICER; Cast Iron Frame, with Push-Off; Tinned Steel Threaded Feed Shaft and Crank; Enameled Wood Handle; Tempered Blue Finish Steel Adjustable Paring Knife; Tempered Tinned Steel Coring and Slicing Knife; Coppered Steel Wire Coil Spring on Paring Knife Arm; Finished in Rust-Proof Blue Lacquer; Length over all 9 inches; Height over all 6 inches; Weight per dozen about 27 lbs. $6.50

One Dozen in a Case.

PEACH AND APPLE PARERS.

SCOTT'S GENUINE.

Per Dozen

No. S—Rotary Knife; Cast Iron Frame, Gearing and Clamp; Steel Axles and Fork, Steel Coil Knife Spring; Tempered Steel Circular Revolving Knife, Riveted to Shaft; Enameled Wood Handle; Height over all, when set up, 8 inches; Clamping Post Detachable from Main Frame; Finished in Rust-Proof Blue Lacquer; Weight each about 3¼ lbs. $21.50

One-twelfth Dozen in a Cardboard Box; One Dozen in a Wood Case.

Weight per dozen about 45 lbs.

SELF-DUMPING AND SELF-RIGHTING COAL BUCKETS

SIDE CATCH

Buckets are designed to secure strength and durability, with easy handling, rapid filling, quick dumping and righting, and a free discharge.

Strong steel brackets are fastened to bottom of the buckets, which carry large, wide wheels containing self oiling bearings, the wheels are rounded on the edges, to facilitate the turning of the buckets, and of sufficient diameter to give ample clearance for the bottom of the bucket to pass freely over pieces of coal.

The bail is one of the most important parts of the bucket, and is made of the best material, in a thorough, workmanlike manner.

Only the best refined iron is used of ample size to carry at least six times the loads.

Particular pains are taken with the side catch bail, the weakest part of which is in the immediate vicinity of the catch, and if not properly made will either bend or break, should the bucket accidentally swing and strike underneath the deck of a vessel. To meet such accidents we carefully swell the iron of the bail, near the catch, to twice the ordinary thickness, thereby making it doubly strong.

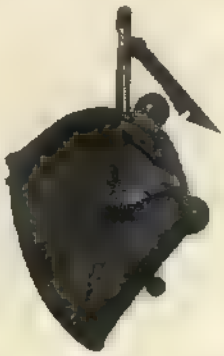
The catch is strong and neatly designed, with a long and wide surface to prevent wear, and to guard against danger of accidentally unfastening itself in transit.

The trunnions are large and well formed, and are located to insure a perfect balance, thereby permitting the bucket, when the catch is unfastened by the operator, to quickly dump its load and immediately right and lock itself to the bail automatically.

The handles are strong and have ample room for their easy operation.

Number of Bucket	Coal Cap., Pounds	Capacity in Cubic Feet	Weight, Pounds	Price Each	Number of Bucket	Coal Cap., Pounds	Capacity in Cubic Feet	Weight, Pounds	Price Each
1	280	5 3-5	152	$27.00	15	800	16	428	$ 65.00
2	320	6 2-5	155	28.00	16	850	17	430	67.25
3	370	7 2-5	165	29.25	17	900	18	450	69.50
4	400	8	190	31.50	18	1000	20	485	72.00
5	400	8	245	35.75	19	1120	22 2-5	485	73.00
6	450	9	200	32.00	20	1200	24	515	81.00
7	500	10	225	35.75	21	1300	26	550	95.00
8	500	10	275	38.50	22	1500	30	630	105.00
9	560	11	295	40.00	23	1750	35	750	112.00
10	600	12	320	48.00	24	2000	40	810	114.00
11	600	12	375	53.00	25	2240	44	850	121.00
12	650	13	380	54.00	26	2500	50	900	145.00
13	700	14	385	57.50	27	3000	60	1000	170.00
14	750	15	400	61.00	28	3360	67	1100	180.00

SELF-DUMPING AND SELF-RIGHTING COAL BUCKETS BACK-LEVER CATCH



For General Description See Side Catch Buckets

No. of Bucket	Coal Cap. Lbs.	Cap. in Cu. Ft.	Weight, Lbs.	Price Each	No. of Bucket	Coal Cap. Lbs.	Cap. in Cu. Ft.	Weight, Lbs.	Price Each
30	25	5 3-5	157	$27 00	43	800	16	440	65 00
31	320	6 2-5	160	28 00	44	850	17	445	67 25
31	370	7 2-5	170	29 25	45	900	18	450	69 50
32	400	8	195	31 50	46	1000	20	485	72 00
33	440	8	255	35 75	47	1120	22	510	73 00
34	480	9	210	32 00	48	1200	24	525	81 00
35	500	10	230	35 75	49	1300	26	565	95 00
36	500	10	245	38 50	50	1500	30	600	105 00
37	560	11	310	40 00	51	1750	35	785	112 00
38	600	12	330	48 00	52	2000	40	835	114 00
39	600	12	385	53 00	53	2240	44	860	121 00
40	650	13	330	54 00	54	2500	50	920	145 00
41	700	14	400	57 50	55	3000	60	1000	170 00
42	750	15	420	61 00	56	3360	67	1170	180 00

Automatic Dumping Coal Bucket

This Bucket is used for Automatic Coal Elevators with inclined booms.

The Back-lever catch is extended forward underneath and clear of the bail, to operate as an automatic tripping device.

The Bucket is carried on a trolley, running on the inclined boom, and after it is raised the limit of its vertical hoist, while the trolley remains at rest, the further pull of the hoisting rope pulls the trolley with the Bucket up the inclined boom.

A roller attached to a movable hanger extends downward from the boom, and when the extended back-lever catch strikes the roller, it is released, and the Bucket automatically dumps its load.

When the Bucket is empty, it rights itself to its former upright position, and the back-lever catch at the same time secures itself in place.

The design, workmanship, strength, durability and rapidity of action of these Buckets have no equal.

Size Number of Bucket	Coal Capacity in Pounds	Coal Capacity in Cubic Feet	Price
57	370	7 2-5	$ 32 00
58	450	9	35 00
59	560	11	42 00
60	750	15	65 00
61	1120	22	82 00
62	1500	30	110 00
63	2000	40	125 00
64	2240	44	130 00

SETH THOMAS CLOCKS.

YALE.

CAMBRIDGE.

	Per case
Yale, 8-Day, Half-hour strike, wire Bell, (without alarm), old oak, 23 in. high	$26.40
Cambridge, 8-Day, Half-hour strike, wire Bell, Cathedral Gong, with alarm, 6 in. Dial, old oak, 23 in. high	39.40

Six in a case.

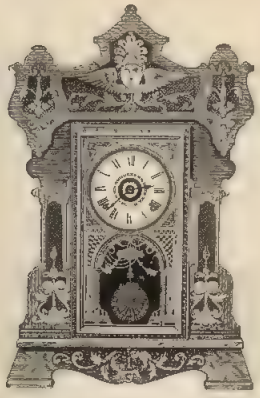
10-IN. DROP OCTAGON, GILT

No. 2 Regulator.

	Each
10 in. Drop Octagon, Gilt, 8-Day, spring, Time, 10 in. Dial, old oak, polished, 21½ in. high	$6.80
No. 2. Regulator, 8-Day, weight, Time, 12 in. Dial, cherry or old oak veneer, polished, movement 2½x4¼ in., lantern pinions, Graham pallets, brass covered zinc ball and wood rod, eighty beats to the minute, movement has retaining power. .	22.70

SETH THOMAS CLOCKS.

THE GIANTS ASSORTMENTS.



Eight-Day, Half-Hour Strike, 6 In. Dials, Golden Oak, Embossed Ornamentation, 25 In. High.

Packed and sold only in "assortments," consisting of six clocks, two of each of the three different patterns.

	Per case
The Giants, Assortment Q, Contains 6 wire Bell Clocks with strike	$31.40
The Giants, Assortment R, Contains 6 wire Bell Clocks with strike and alarm	35.40
The Giants, Assortment S, Contains 6 wire Bell Clocks, three with strike and three with strike and alarm.	33.40

THE METALS ASSORTMENTS.

Eight-Day, Half-Hour Strike, 6 in. Dials, Made in Oak only, Ornamented with Metal, 23 in. high.

Packed and sold only in "assortments," consisting of six clocks, one of each of the six different patterns.

	Per case
The Metals, Assortment A, Contains 6 wire Bell Clocks with strike	$30.00
The Metals, Assortment B, Contains 6 wire Bell Clocks with strike and alarm	34.00
The Metals, Assortment C, Contains 6 wire Bell Clocks, three with strike and three with strike and alarm.	32.00

SETH THOMAS CLOCKS.

12-IN. DROP OCTAGON.

DROP OCTAGON CALENDAR.

	Each
12 in. Drop Octagon, 8-Day, spring, Time, old oak, polished, 23½ in. high	$7.20
Drop Octagon Calendar, 8 Day, spring, strike, 12 in. Dial, rosewood veneer, polished, 23 in. high	9.50

SUSSEX.

ARNO.

	Each
Sussex, 8-Day, Half-hour strike, Half hours on Cup Bell, Hours on Cathedral Bell, 5 in. Dial, Bronzed Metal Feet, height 10¾ in., base, 11½ in.	$6 80
Arno, 8-Day, Half-hour strike, Half-hours on Cup Bell, Hours on Cathedral Bell 5 in Dial, Adamantine Onyx Columns, height 11½ in., base 12½ in.	7.60

SETH THOMAS CLOCKS.

BEULAH.

DORSET.

Each

Beulah, 8-Day, Half hour strike, Half-hours on Cup Bell, Hours on Cathedral Bell, 5 in. dial, wood case, white adamantine finish, adamantine onyx columns, gold-plated metal feet and ornaments, height 10½ in.; base, 14½ in., these cases can be cleaned with a damp cloth without injury to finish $8.40

Dorset, 8-Day, Half hour strike, Half-hour on Cup Bell, Hours on Cathedral Bell, 5 in. dial, wood case, adamantine finish, black metal columns, gilt feet and ornaments, height 11¾ in.; base 16½ in..... 8.25

One in a case.

LEEDS.

IDEAL.

Each

Leeds, 8-Day, Half-hour strike, Half-hour on Cup Bell, Hours on Cathedral Bell, 5 in dial, wood case, adamantine finish in mahogany, black metal columns, gilt metal feet and ornaments, height 11½ in.; base, 16¾ in..... $8.40

Ideal, 8-Day, Half hour strike, Half-hour on Cup Bell, Hours on Cathedral Bell, 5 in. dial, wood case, adamantine finish bronze metal feet and ornaments, height 11½ in., base, 16¾ in. 8.60

One in a case.

Square Base Drill with Power Feed, Automatic Stop and Back Gears

"SILVER" 20-INCH SWING NEW POWER DRILLS

Particularly designed and adapted to meet the up-to-date and exacting requirements of modern machine shop practice.

The plain lever feed is suited for all ordinary work that comes to a drill of this kind.

The combined lever and wheel feed permits either the lever or the wheel to be used without affecting the other.

The power feed requires only to be started and will stop automatically wherever set. This action is entirely independent of the wheel or the lever feed; either of these can be used in addition.

The power feed with back gearing has, in addition to the preceding, a back gear friction mechanism. By means of this, four slow speeds are provided, for heavy work, making a total of eight different speeds.

Table has easy up-and-down adjustment and swings to either side.

When the tool is wanted only for drilling, the countershaft for it is provided with tight and loose pulleys, 8 inches diameter by 2½-inch face, as shown in the accompanying engraving, and should make 200 revolutions per minute. For tapping and drilling, a friction countershaft is required.

Drive shaft turns 1⅝ times to 1 turn of spindle.

Specifications and Prices

Height	68¼	inches
Diam. of Column	5¼	"
" " Table	16	"
" " Spindle	1	"
Vertical Travel of Spindle	10	"
" " " Table	16	"
Spindle Bored for No. 3 Morse Taper		
Distance from Column to Center of Table	10¼	"
" " Spindle to Base	4[illegible]⅛	
" " Spindle to Table	20⅝	
Diameter of Crown Gear	5[illegible]	
" " Bevel Pinion	3¾	
" " Large Pulley on Cone	9¼	
" " Small " "	4	"
Cone Carries	2¼-in. belt	
Size of Tight and Loose Pulleys	8x2½	
Floor Space, Round Base Drill	20x20	inches
" Square " "	16x16	

Prices

Round Base Drill, with Lever Feed Only	$ 85 00
Square " " Combined Lever and Wheel Feed	95 00
" " " Power Feed with Automatic Stop	115 00
" " Back Gears and Power Feed with Automatic Stop	140 00

Round Base Drill with Lever Feed Only

No. 06. FRICTION DISC-DRIVEN DRILL

The friction plate has a hub which runs in a ball-bearing on the main frame. This plate is brought into contact with driving wheel by an eccentric ring, easily and quickly moved and locked in position

The driving wheel is built up of paper clamped between two discs. It lasts a long time and is easily replaced

Variation in speed is obtained both on cone pulleys and by moving the wheel to and from the center of the friction plate When adjusted it is secured in position by the thumb set-screw shown.

A ball-bearing thrust collar on the spindle removes practically all friction there

The power is the greatest on the larger tools and drills, the driving wheel being set at the outer edge of the disc.

The table is counterbalanced by a weight in the hollow column It can be easily raised or lowered, swung to either side and locked in position by an ever present wrench

The column is graduated in a vertical line its full length, making it possible to set the center of the table in line with the spindle at any point of vertical adjustment.

The countershaft is securely bolted to the base, has tight and loose pulleys and two-step cone

Greatest [illegible]
[illegible]
[illegible]
spindle, 33½ in.
Diameter of column, 3½ in.
Size of table, 10x10 in.
Distance from [illegible]
7¾ in.

With [illegible]
[illegible]
Cone pulleys, 4x6x2 in.
Width of belts, 2 in.
Size of base, 12x20 in.
[illegible] of [illegible] pulleys, 9 ft. 9 in.

Speed of countershaft [illegible] r p m
Speed of drills, [illegible] to [illegible]
Spindle [illegible] No. 1 Morse taper.
Capacity, 0 to ½ in.
Weight [illegible] pounds
Price, not including chuck, $55.00

No. 066. 10-INCH SENSITIVE BENCH DRILL

This tool is designed for light rapid drilling up to $\frac{5}{16}$ holes

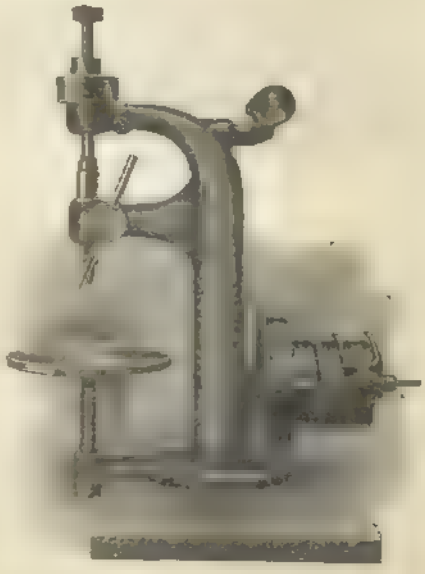
The Spindle is driven by a 1-inch flat belt. It has two speeds, a cut rack and pinion feed, and an adjustable stop to gauge the depth of holes. It is entirely relieved of belt strain, and is counterbalanced by a spring inside of frame, making it extremely sensitive and uniform to the touch. It is also provided with means for taking up lost motion, and has a nut above the taper for removing the chuck.

Unless ordered otherwise, the machines are sent with the spindles fitted to the $\frac{5}{16}$ "Almond" and the $\frac{1}{16}$ "Skinner" drill chucks

The Countershaft is attached to the frame, and can be placed directly under line shaft, thus avoiding the trouble and expense of putting up a countershaft

Speed: It can be run at a very high rate of speed, as the pulleys are turned inside and out, and all the rotary parts are perfectly balanced.

We furnish an endless cotton drive belt.



Dimensions

Greatest distance from spindle to table, 8½ inches.
Vertical movement of spindle, 2 [illegible] inches.
Vertical adjustment of table, [illegible]
Diameter of table, 8 inches.
Distance from center of spindle to frame, 5 inches
Drill capacity, 0 to $\frac{5}{16}$ inches.
Weight without column, 50 pounds.
Weight with column, 165 pounds.

Bench drill	$25 [illegible]
With column and table,	[illegible]
$\frac{5}{16}$-inch Almond or New Model chuck-fitted	5 00

Extra Quality Silver and Nickel Plated Call Bells

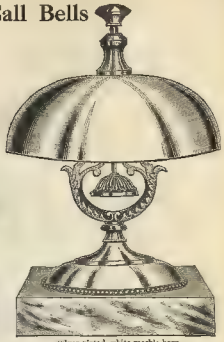
Hand, Electric, Rotary and Push Bells.

ILLUSTRATIONS ABOUT ½ SIZE. PRICES EACH.

Silver plated, white marble base.
No. 2200 ..... $1 62

Nickel plated, bronze base.
No. 2800 ..... $1 00

Nickel plated, bronze base.
No. 3300 ..... $1 17



Silver plated, white marble base.
No. 2400 Extra large, best quality $5 40
No. 2300 Same style, medium size $3 60

Silver plated, gold base.
No. 9403 ..... $1 00

Electric strike all silver plated.
No. 9426 ..... $2 16

Electric strike silver plated bell, gold base.
No. 9428 ..... $2 43

Gilt bell, bronze base.
No. 9443 ..... $0 62

Nickel plated.
No. 53 ..... $1 95

Silver plated.
No. 66 ..... $3 78

Nickel plated, bronze base.
No. 9200 ..... $0 70

Nickel plated, bronze base.
No. 9300 ..... $0 65

Silver plated.
No. 116 ..... $2 16

Silver plated.
No. 119 ..... $0 76

Silver plated.
No. 115 ..... $1 62

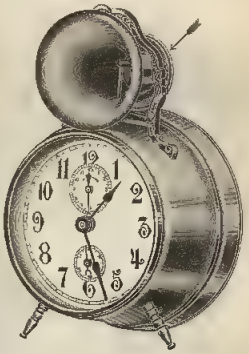
Silver plated.
No. 118 ..... $0 65

Silver plate
No. 114 ..... $1 62

NOVELTY ALARM CLOCKS

No. 84010 Sleigh bell alarm, gold-gilt copper case, height 8 inches, width 5 inches, silver-finished dial, 4 inches, with nickel on [illegible] top piece with two melodious bells and two hammers imported, movement of the highest quality. Per doz. $48 00

No. 84011 Parlor alarm walnut case, with gold-gilt trimmings and [illegible] height 8½ inches, width 6 inches, ivory-finished dial, 5 inches with gold center, imported, movement of the highest quality. Per doz. $48 00

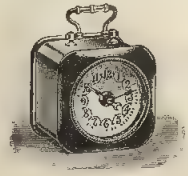


No. 84012 A phone alarm clock with a noise producer on the same principle as the sounding disc of a telephone is the noisiest "sleep, topsleep" ever made, copper case, height 7 inches. Per doz. $42 00

No. 84013 Joker music alarm clock, with 36 teeth in music box, gold-gilt front and handle, nickel-plated frame and glass sides, height 7 inches, width 5 inches, this clock plays one time for about ten minutes instead of ringing a bel. Per doz. $57 60

No. 84014 A novel desk alarm clock. The clock is suspended in a gilded arch with mahogany base. Height 5 inches, clock case is made in copper representing two bells, a lever movement of first quality, alarm with two hammers. Per doz. $78 00

No. 84015 Travelling clock, gun-metal case, height 6 inches, 3½ inches, ivory finished dial, imported, movement of the highest quality, one-day time. Per doz. $102 00



No. 84016

No. 84017

No. 84018

No. 84016 Travelling alarm clock, nickel case, height 2 inches, porcelain dial, with Arabic figures, watch movement, one key winds alarm and clock, the smallest alarm clock made. Per doz. $60 00

No. 84017 Midget alarm clock, lever movement, copper-finished case, 2½ inches square, ivory-finished dial, 2 inches, beveled glass, leatherette case. Per doz. 66 00

No. 84018 Midget alarm clock, lever movement, oxidized steel finished case, height 2½ inches, ivory-finished dial, 2 inches, beveled glass, leatherette case. Per doz. 66 00

CLOCKS Continued

Dash

Auto Alarm

No. Per doz.
84019 4-inch nickel-finished brass seamless case, one-day time, alarm $16 00
84020 4½-inch seamless case, knurled front and bell on back, 1-inch Arabic dial, one-day time alarm 20 40

Beacon Alarm Calendar

The Tatoo Alarm—Nickel

No. Per doz.
84021 4¼-inch nickel-finished seamless brass case, with 2¼-inch bell, one-day time, alarm calendar $20 40
84022 4½-inch seamless case alarm (nickel-plated), every 20 seconds for 15 minutes on a 4-inch bell metal gong, on back of clock alarm can be stopped by turning a screw, one-day time alarm 28 10

San Lucas

Merchants' Line

No. Per doz.
84023 Wood oak case, Flemish finish, 6-inch dial, cast numerals and fancy brass hands, height 20¼ inches, width 11½ inches, eight-day half-hour strike, cathedral gong $52 20
84024 Oak or dark wood case, height 22¾ inches, width 15 inches, dial 6 inches, eight-day, half-hour strike 52 20

Sampson

Madrid

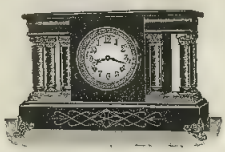
No. Per doz.
84025 Oak case with thermometer, barometer, and level, height 25 inches, width 15½ inches, dia. 6 inches, eight-day half-hour strike with calendar $70 20
84026 Spanish mission, hanging, height 27½ inches, width 15½ inches, dial 12½ inches, eight-day half-hour strike, cathedral gong 75 00

Barclay

Prescott

No. Per doz.
84028 Black or white wood case, gilt or bronze trimmings, height 11½ inches, width 15½ inches, dial 6 inches, eight-day half-hour strike, cathedral gong $105 00
84029 Black coarse wood case, marbleized mouldings and pillars, gilt or bronze trimmings, height 11½ inches, width 18½ inches 6-inch dial, eight-day, half-hour strike, cathedral gong 113 40

Ottawa



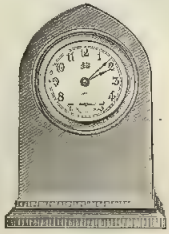
Woodbridge

Per doz.
84030 Black enameled wood case, marbleized mouldings and pillars, gilt or bronze trimmings, height 11¾ inches, width 15¾ inches, dial 6 inches, eight-day, half-hour strike, cathedral gong $117 00
84032 Black coarse wood case, marbleized mouldings and pillars, gilt or bronze trimmings height 11¾ inches, width 18 inches, dia. 6 inches eight-day, half-hour strike, cathedral gong 130 20

12-inch Branford

Occidental

No. Per doz.
84027 Solid oak case, height 27½ inches, width 17½ inches, 12-inch dial, eight-day, half-hour strike $88 80
84031 Oak or walnut case, height 21 inches, width 16½ inches, dial 6 inches, eight-day, half-hour strike 124 80



No. S4000

No. S4001

No. Per doz.
84000 Metal, old brass finish, colonial design, 2-inch ivory dial, one-day time, height 5½ inches, width 3½ inches $60 00
84001 Metal, old brass finish, colonial design, 2-inch ivory dial, one-day time, height 5 inches, width 3½ inches 72 00

SMITH-VAILE, CLASS "A," STRAIGHT LINE, STEAM DRIVEN AIR COMPRESSOR

Cut of 10 x 10 x 10 Machine

Air cylinder is equipped with water jacket. Air valves are of the automatic type and of steel. Inlet valves are located in the upper part of cylinder heads, the discharge valve in the lower half. Crossheads, connecting rods and piston rods are of steel. Connecting rods are equipped with bronze boxes for crosshead and crankpins. The flywheels are of liberal proportions and weight. The lower half of the crosshead guide is adjustable and crosshead is provided with babbitted buttons. Main shaft bearings are of liberal area and babbitted. The steam valve is of the slide type, with a fixed cutoff, and permitting of use of steam expansively.

Size of Cylinder and Steam Piston					Air Piston Sweep Cubic Feet					Pipe Sizes				Floor Space		Fly Wheel		
										Steam		Air						
Steam	Air	Length of Stroke, Inches	Revolutions per Minute	Piston Speed, Feet per Minute	Per Revolution	Per Minute	Air Pressure, Lbs.	Indicated Horse Power	Steam, Inches	Exhaust, Inches	Inlet, Inches	Outlet, Inches	Length	Width	Diameter	Approximate Weight, Each	Diameter of Shaft
6	6	6	[illegible] to 150	00 to 150	[illegible]	19 to [illegible]	[illegible]	4½ and [illegible]	1½	1½	2	2	[illegible] x 6	[illegible] x [illegible]	[illegible] x 9½ in	300	[illegible]
6	8	6	[illegible]	[illegible]	[illegible]	34	51	60	5½ " 7½	1½	1½	2½	2½	[illegible] x 6	2 x 6	2 x 9½ "	300	[illegible]
8	8	8	[illegible]	[illegible]	[illegible]	45	69	100	9 " [illegible]	[illegible]	2	2½	2½	7 x 6	2 x 3	3 x [illegible]	490	3
8	10	8	00 " 150	133 " 200	72	72 "	108	70	11½ " 16½	1½	2	3½	3	7 " x 9	2 " x 3 "	3 " x 1½ "	490	3
10	10	10	00 " 150	166 " 200	[illegible]	90	134	100	8 " 27	2	2½	3½	3	8 x [illegible]	2 x 6	3 x [illegible]	740	[illegible]
10	12	10	100 " [illegible]	[illegible]	[illegible]	[illegible]	90	70	[illegible]	2	2½	4	3	8 x [illegible]	2 x 6	3 x 5½ "	740	[illegible]
12	12	12	00 " [illegible]	[illegible]	[illegible]	[illegible]	225	100	33 " 50	2	3	4	3	[illegible] x 7	x 1	4 x [illegible] "	660	4½
12	14	12	100 " [illegible]	[illegible]	[illegible]	220	[illegible]	70	[illegible]	2	3	4	3½	[illegible] x 10	x 1	4 x 2 "	1000	4½
12	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	278	[illegible]	50	40 " 60	2	3	5	4	8 x [illegible]	x 1	4 x 2 "	660	4½
12	18	12	100 " 150	200 " 300	[illegible]	[illegible]	[illegible]	40	[illegible]	2	3	6	4½	9 x 8	x 1	4 x [illegible]	660	4½

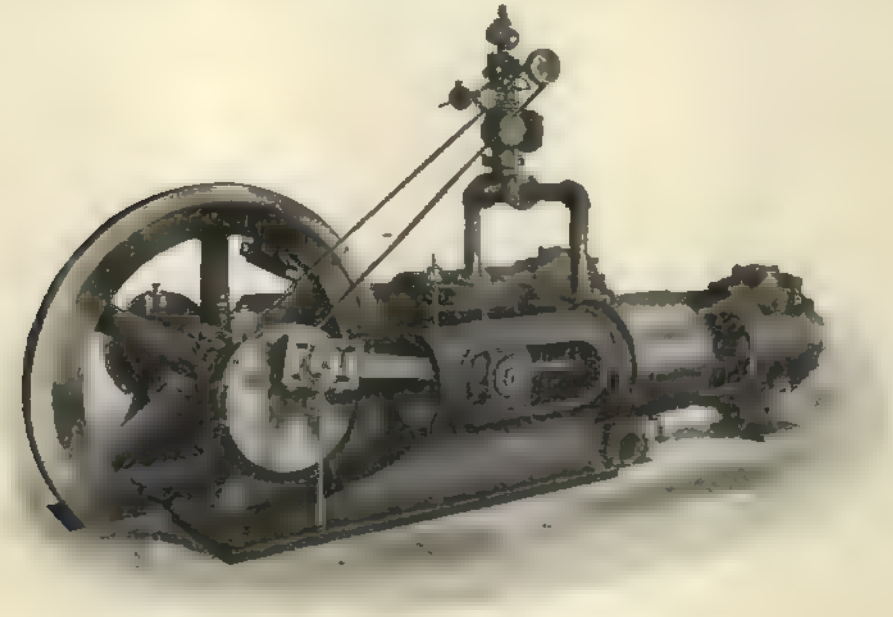
Equipment.

Speed Governor or Combination Speed and Pressure Regulator.
Automatic Air Valves.
Sight-Feed Lubricators for Steam and Air Cylinders.
Special Wrenches Required.

Extras.

Sole Plate.
Lagging for Steam Cylinder
Unloading Valve
Throttle Valve.
Foundation Bolts.

SMITH-VAILE, CLASS K, DUPLEX, STEAM ACTUATED AIR COMPRESSORS



Exhibiting Size { 10 x 12 Steam Cylinders. / 10 x 12 Air Cylinders

EQUIPMENT:

Combination Speed and Pressure Regulator
Automatic Air Valves
Set Special Wrenches required.
Set Oilers for Bearings.
Sight Feed Lubricators for Steam and Air Cylinders
Soleplate for 8-inch Stroke Compressors only.

EXTRAS:

Myers' Cut-off Valve for Steam Cylinders
Mechanically operated Inlet Valves for 10x12-inch Air Cylinders and larger
Throttle Valve, Foundation Bolts
Soleplate for larger than size 8x10x8.
Steel Lagging for Steam Cylinders furnished at additional price

Size Cylinders			Revolutions per Minute	Piston Speed Feet per Minute	Air Piston Sweep Cubic Feet		Air Pressure, Lbs.	Indicated Horse Power	Pipe Sizes				Floor Space				Fly Wheel		Diameter Shaft
									Steam		Air		Length		Width		Diam		
Steam	Air	Length of Stroke			Per Rev.	Per Minute			Steam	Exhaust	Inlet	Outlet	Ft.	In	Ft.	In	Ft.	In	Avg. Weight	
8	8	8	100 to 150	133 to 200	.92	92 to 138	100	20 to 28	2	3	3½	3	9	2	5	0	4	2	1,000	4½
8	10	8	100 " 150	133 " 200	1.4	140 " 210	70	25 " 38	2	3	4	3	9	2	5	0	4	2	1,000	4½
8	12	8	100 " 150	133 " 200	1.9	190 " 285	40	25 " 37	2	3	5	3½	9	3	5	1	4	2	1,000	4½
10	10	12	100 " 150	200 " 300	2.1	210 " 315	100	45 " 67	3	4	4	3	11	3	6	1	4	6	1,400	5½
10	12	12	100 " 150	200 " 300	3.1	310 " 465	70	53 " 80	3	4	5	3½	11	3	6	2	4	6	1,400	5½
10	14	12	100 " 150	200 " 300	4.	400 " 600	50	55 " 82	3	4	5	4	11	5	6	4	4	6	1,400	5½
12	12	12	100 " 150	200 " 300	3.1	310 " 465	100	65 " 95	4	5	5	3½	12	2	7	0	5	0	1,800	6
12	14	12	100 " 150	200 " 300	4.	400 " 600	70	70 " 105	4	5	5	4	12	3	7	2	5	0	1,800	6
12	16	12	100 " 150	200 " 300	5.5	550 " 800	50	75 " 115	4	5	6	5	12	3	6	4	5	0	1,800	6
12	18	12	100 " 150	200 " 300	7.	700 " 1,000	40	85 " 125	4	5	7	5	12	3	6	6	5	0	1,800	6

Duplex machines are also built with simple steam ends, simple air ends, compound steam cylinders and simple air ends; also compound steam and air.

ARTIFICIAL EYES.

Snellen Reform Eye.

Universal.

Left.

Right.

Ordinary Style.

We have added to our already very large stock of ordinary shell eyes a very good stock of the Snellen Reform Eyes, and now have without doubt the largest and most complete stock of artificial eyes carried by any wholesale optical house in the United States. At the same time that we call the attention of our customers to the Reform Eye, we want to caution them that there are on the market several cheap American made eyes that are imitations of this eye, but can easily be detected by examination. Our eye is clear and life-like in coloring, and the edges are smooth and well finished, while the imitations are not so life-like, and the edges are rough and exceedingly dangerous when the eye is put into the socket.

The advantages of the Snellen Reform Eye are as follows:

First.—That the use of them causes much less secretion than the ordinary style, and thus prevents the accumulation of substance in the cavity, which causes irritation to the conjunctiva and annoyance to the wearer, all substances finding their natural way of discharge.

Second.—The Reform Eye is designed and made so as to lay flat upon the stump of the removed eye.

Third.—By the construction of the Reform Eye, all the sharp edges are dispensed with, a feature that will appeal to all experienced with the trouble caused by rough edges on artificial eyes.

Fourth.—The Reform Eye, being made in the full shape it is, with closed back, as will be seen from the illustration, renders it a much more natural movement, and thus prevents the wearer from becoming tired with its use, and can also be worn longer without removing.

Fifth.—The Reform Eye, owing to the points called attention to in the above, can be **worn at night,** and thus preserve the form of the socket and prevent the eye-lashes from falling back into the empty socket, as is common with the ordinary style, which require to be removed at night.

Sixth.—The Reform Eye is more durable, not only from causes of accidental breakage, but from sudden changes of temperature, to which the ordinary eye is very sensitive. The construction of the eye with an inside chamber of air is responsible for this feature.

We recommend that selections of artificial eyes be made to include some of both patterns of eyes, ordinary shell and Snellen Reform, to assist in obtaining exact requirements, and will observe the rule to send selections in that manner unless otherwise specifically instructed.

Measurement for width.

Measurement for length and height.

In ordering single eyes please state:

First. Whether for patient's right or left eye.
Second. Color of iris.
Third. Diameter of iris.
Fourth. Pupil large or small.
Fifth. Should the white of eye be blue, white or yellowish.
Sixth. Measurement in millimeters for width as per diagram above.
Seventh. Measurement in millimeters for length as per diagram above.
Eighth. Measurement in millimeters for height as per diagram above.

PRICES.

Single Snellen Reform Eyes	$8 00
" Shell Eyes, first quality	4 00
First quality Shell Eyes, in quantities of not less than 25 eyes at one purchase, per 100	150 00
Second " " " " " 25 " " " " 100	80 00

The price of single eyes is for an eye selected from our stock or for one chosen out of a box containing selection sent on approval. The heavy stock which we are obliged to carry, together with the time and trouble necessary for selecting the proper size and color, make it necessary for us to charge the above prices for single eyes.

The price for first quality eyes per hundred is for the same quality of eyes. Quantity price on Reform Eyes on application.

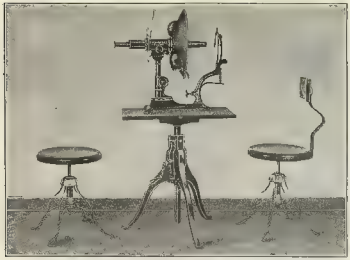
Artificial Eye Box.

Chamois lined boxes, leather covered, for carrying single artificial eye. Very handy way of keeping an extra eye.

Per gross, printed.....$30 00 Per dozen, plain.....$2 50 Singly.....$0 30
Polishing artificial eye.....50c to $1 00 Grinding down artificial eye.....50c to $1 00

Artificial eyes polished and ground down at owners' risk only.

Express on memorandum packages shipped to customers must be paid by them both ways.



THE HARDY OPHTHALMOMETER.

20th Century Model—Luminous Mires.

Height 21¼ inches, length 24 inches, width 16½ inches, weight, boxed, about 90 pounds.

PRICE LIST.

Twentieth Century Ophthalmometer, with trans-illuminated mires, for use with city electric current, complete, including lamps and attachments	$160 00
Twentieth Century Ophthalmometer, with battery	180 00
Twentieth Century Ophthalmometer, for gas, *without* trans-illuminated mires, complete, including tubing and Welsbach burners	160 00
Table with rising base, as shown above	20 00
Chair with rising base, as shown above	9 00
Stool with rising base, as shown above	4 50

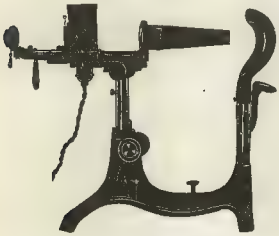
6 per cent discount for cash.

N B.—In ordering instrument, state voltage of current furnished by city lighting plant, that proper lamps may be supplied.

THE GENEVA COMBINED OPHTHALMOSCOPE AND RETINOSCOPE.

This instrument is devised for the purpose of making ophthalmoscopy and retinoscopy more certain, easy and accurate. It offers no new principle upon the subject, but simply provides the means of practicing it with the greatest precision. It may be called an instrument to "make ophthalmoscopy and retinoscopy easy."

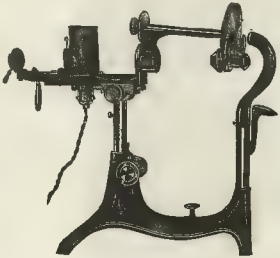
It will be readily seen that the instrument fixes the distances between the light and the mirror, the mirror and observed eye, and the observed and observing eye.



PATENTED

AS AN OPHTHALMOSCOPE.

The ophthalmoscope attachment gives a clear and enlarged view of the fundus, with its arteries, veins and optic disc perfectly revealed. The entire field may be explored as will, without inconvenience to patient or observer, any abnormal development being shown with wonderful clearness. No dark-room required to obtain good results, and no previous experience necessary to operate it, whereas, with old methods, months of practice is necessary to obtain satisfactory results.



PATENTED

AS A RETINOSCOPE.

A simple attachment instantly turns the instrument into a retinoscope, bringing the lenses before the eye as every meridian can be neutralized and corrections made without additions or deductions, as in all other methods. No trouble as to light; its reflection to the right point, the maintenance of the mirror's due inclination, the tilting and accurate notation of every meridian. Can be used in lighted rooms and results obtained with a quickness and dexterity equaled by no other methods.

Price Complete with attachments for ophthalmoscopy and retinoscopy, and lighting attachment (electric, gas or oil) $180 00

PUNCTUMETER.

This is a new and handy instrument which every refractionist in the country should have. It measures accommodation, hyperopia, myopia, presbyopia, astigmatism, and is, in addition, a superior spherical lens measure. Booklet furnished on application.

Price, each	$12 00
With stand instead of handle	18 00

All Orders Filled Same Day Received. No Delay.

No. 471 Common nickel plated Optometer each, 90c

DOLL—Continued

SOFT BODY DRESSED DOLLS

Bisque heads, glass eyes, long flowing hair, removable shoes and stockings. Measurements do not include hats

No. 1250

No. 1253

No. 1254

No. 1262

No. 1256

No. 1264

No. 1258

No. 1260

No.		Per doz.
1250	Assorted six styles of colored dresses with fancy collars and voices, wire framed hats with net bow, height 10½ inches, each in box, ½ dozen in package	$4 50
1253	Assorted six styles of check, figured and polka dot gingham dresses with fancy flowers, organdie and lace collars and revers with hat and net bow to match, height 10½ inches, each in box, ½ dozen in package	4 50
1254	Assorted four styles of mercerized and figured dresses, lace flounces, white, organdie and striped blouses with lace collars and revers. Hats with net bow to match, moving eyes, curly bangs and side curls, height 14 inches, each in box, ½ dozen in package	8 00
1262	With Papa and Mamma voice, organdie dress, with flounce trimmed with lace, wire-framed organdie hat, lace trimmed, side curls, height 14 inches	38 00
1256	Assorted four styles of mercerized and organdie dresses fancy lace trimmed collars, lace trimmed hats to match, moving eyes, curly bangs and side curls, height 16½ inches, each in box, ½ dozen in package	12 00
1264	Assorted three styles of mercerized and flowered dresses with lace flounce, flowered blouse, large collar trimmed with lace and sleeves to match trimmed with lace, hat trimmed with white bows and flowers, curly bangs and side curls. Height 17 inches, each in box, ½ dozen in package	16 00
1258	Assorted three styles of mercerized and figured cotton dresses with double lace flounces, white and flowered blouses, fancy lace trimmed collars, hats trimmed with lace and bows, moving eyes, curly bangs with side curls, height 17½ inches, each in box, ½ dozen in package	18 00
1266	With Papa and Mamma voices, assorted colored dresses with two rows of lace on skirt, white figured blouse, large lace collar trimmed with colored edging and ribbon streamers, straw hat trimmed with net bows and plume, height 18 inches	25 20

Hip joint ed Dressed Dolls with bisque turning heads, glass eyes, flowing hair, side curls, removable shoes and stockings. Measurements do not include hats

Each in box

No. 1360

No. 1364

No. 1370

No. 1372

No. 1374

No. 1376

No. 1378

No. 1380 No. 1382

No.		Per doz.
1360	Satin skirt, colored blouse, large flowered gauze collar trimmed with braid and lace. Large white gauze hat with colored crown, removable shoes and stockings, height 10½ inches, each in box	$4 00
1364	Colored flannel winter dress with revers trimmed with Eiderdown, Eiderdown boa and muff, flannel winter hat trimmed with eiderdown, feather and bow, removable shoes and stockings, height 10 inches, each in box	4 00
1370	Plaited gauze dress with lace flounce, broad white gauze collar, lace trimmed yoke, colored wire frame hat, side curls, removable shoes and stockings, height 11 inches, each in box	4 00
1372	White plaited gauze over-dress with colored underskirt plaited yoke, plaited gauze collar trimmed with braid and silk ribbon, white baby hat trimmed with lace and silk bow, height 10½ inches, each in box	$4 00
1374	Mercerized blouse dress, skirt trimmed with two ribbon bows, lace trimmed yoke, white gauze collar trimmed with colored braid and two ribbon bows, straw hat with flower, side curls, height 12 inches, each in box	4 00
1376	Red Riding Hood doll in regulation red riding hood costume with red flannel cape and hood, red removable shoes and stockings, height 10 inches, each in box	4 00
1378	Gingham dress with collar with colored stitching and lace trimming, plaited gauze lace trimmed hat, side curls, height 11 inches, each in box	$4 00
1380	Colored wool dress, collar and hat all richly trimmed with lace, baby ribbon and hat tied with bow, removable shoes and stockings, height 10 inches, each in box	4 00
1382	White gauze over-dress with plaited lace trimmed flounce and revers, colored bow with gilt buckle, white gauze hat trimmed with colored edging and flower, moving eyes, side curls, height 11 inches, each in box	4 00

No. 1384

No. 1386

No. 1362

No. 1366

No. 1368

No. 1398

No. 1400

No. 1412

No.		Per doz.
1384	Figured mull dress and collar richly trimmed with braid, white plaited baby hat trimmed with lace and bow, moving eyes, side curls, height 11 inches, each in box	$4 00
1386	Colored crepe over-dress and collar, white yoke trimmed with lace beading, colored hat, moving eyes, side curls, height 11 inches, each in box	4 00
1362	White swiss over dress and collar with colored bow and sash. White hat with broad plaited colored gauze edging, side curls, removable shoes and stockings, height 10½ inches, each in box	4 50
1366	Mercerized dress, box plaited apron, red felt hat with bow, side curls, height 9¾ inches, each in box	$4 50
1368	Plaited skirt, white duck jacket with colored revers and cuffs, metal buttons, mushroom hat with colored bow, side curls, height 10 inches, each in box	4 50
1398	Colored mull dress with imitation lace apron trimmed with colored gauze insertion, lace flounces and collar, white box-plaited baby hat, trimmed with large colored bow, height 11½ inches	8 00
1400	Beautiful colored open-work dress with white duck flounce and white duck square-shaped collar trimmed with four ribbon rosettes, two hanging in long streamers, pretty lace revers, straw hat with large colored plume, height 12 inches	$6 00
1412	Sidnette Mother Hubbard dress with baby ribbon sash tied in rosette and hanging in streamers, two rows of white and gilt braid on yoke, large sleeves, lace trimming on bottom of dress large colored baby hat with lace insertion, height 13½ inches	8 00

DOLLS Continued

Hip jointed Dressed Dolls with bisque turning heads, moving eyes, flowing hair, side curls, removable shoes and stockings. Measurements do not include hats Each in box

No. 1416 No. 1426 No. 1428

No. Per doz
1416 Gingham skirt and jacket trimmed with white braid, white blouse, satin tie, mercerized hat trimmed with white braid and large bow, height 13 inches **$8 00**
1426 Gingham skirt with broad sash, white blouse with plaited yoke, large checked gingham collar trimmed with white braid and colored edging. Pretty colored hat with white gauze trimming, height 13½ inches **8 00**
1428 Beautiful colored openwork dress with white dark flounce, and white dark square shaped collar trimmed with four ribbon rosettes, two hanging in long streamers, pretty lace revers, straw hat with large colored plume, height 12 inches **8 00**

No. 1432 No. 1434 No. 1440

No. Per doz
1432 Satinette skirt and large satinette collar with lace insertion trimmed with metal buttons, white blouse, stylish white hat with colored scallops trimmed with feathers and colored gauze bow, height 13½ inches. **$8 00**
1434 Flowered organdie dress with lace flounce, white plaited yoke, large flower on organdie collar trimmed with lace and colored bow, pretty colored hat trimmed with white gauze, height 13 inches **8 00**
1440 Sailor boys and girls in cream color and navy blue sailor costumes and sailor hats to match, height 14½ inches **8 00**

No. 1436 No. 1438

No. Per doz
1436 Flowered gingham dress with mercerized blouse, crossbar yoke, large flowered gingham revers, white picture hat trimmed with colored scallops, feathers and large gauze bow, height 13½ inches **$8 40**
1438 Satinette dress with broad lace flounce trimmed with waste braid, lace yoke satinette and lace collar trimmed with white beading and flounce, white gauze hat trimmed with satinette edging and ribbon, height 13 inches **$8 40**

No. 1430 No. 1414 No. 1460

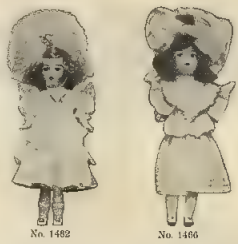
No. Per doz.
1430 Satinette skirt, yoke and collar, all richly trimmed with braid, lace, sash, white blouse, large colored baby hat trimmed with white gauze, height 13½ inches **$8 50**
1414 Linen skirt and jacket with revers trimmed with white braid, white blouse and sleeves, linen hat trimmed with white braid and large white bow, height 13½ inches. . . . **8 50**
1460 Colored mull baby dress with two rows of lace on skirt, pretty lace collar trimmed with striped ribbon rosettes and beading, lace trimmed sleeves, box plaited mull baby hat trimmed with net height 14½ inches **12 00**

No. 1274 No. 1276

"Dressed Dolls of the Future."

Absolutely indestructible full jointed bodies and unbreakable turning heads, open mouth showing teeth, glass eyes, side curls, removable shoes and stockings, and underwear

No. Per doz.
1274 Gingham dress and revers with white plaited blouse trimmed with colored ruching, colored sash, white hat trimmed with colored edging and flowers, height 11½ inches **$10 80**
1276 Flowered gingham dress with white gimp and large flowered collar trimmed with colored ruching and lace, ruching on skirt. Beautiful satinette plaited hat trimmed with lace and plume, height 14½ inches **18 00**



No. 1462 No. 1466

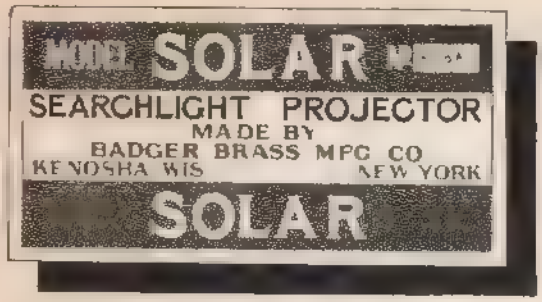
No. Per doz.
1462 White baby dress with embroidered flounce trimmed with braid, plaited yoke embroidered revers, sleeves and yoke trimmed with braid with two striped ribbon bows hanging in streamers, white box plaited baby hat trimmed with ribbon bows and flower height 14½ inches **$12 00**
1466 Colored blouse dress with gingham flounce collar trimmed with corded braid and spangles broad revers, picture hat trimmed with feathers and large colored bow height 14½ inches . **12 00**

Full jointed Dressed Dolls with bisque turning heads, moving eyes, flowing hair, side curls, removable shoes and stockings. Measurements do not include hat Each in box

No. 1464 No. 1468

No. Per doz.
1464 Jointed knees, beautiful velvet blouse dress with white ribbon bow trimmed with white satin buttons, white yoke and sleeves, large velvet over-sleeves trimmed with white corded braid. Straw hat with velvet facing trimmed with fancy white bow and feather, box plaited hat, height 13½ inches **$12 00**
1468 Jointed knees. Pretty white baby dress richly trimmed with baby ribbon, lace, silk edging and lace medallions. White baby hat with two rows of colored baby ribbon and colored feather, height 13½ inches **12 00**
1478 Satin dress, white satin blouse trimmed with two rows of striped ribbon, lace gimp and sleeves, satin and lace collar trimmed with metal buttons baby ribbon and ribbon rosette, beautiful straw hat trimmed with ribbon and metal buttons height 15 inches. **18 00**
1480 Checked gingham dress, satinette blouse and sleeves trimmed with two white bows and metal buttons, lace suspenders trimmed with white cord, colored picture hat trimmed with two ribbon rosettes and large gauze bow, height 15 inches **18 00**

No. 1478 No. 1480



Exclusive Features of Solar Lamps

THE INTERNAL METHOD OF SCREW ASSEMBLING

All Solar Headlights when assembled are riveted by internal screws. This *exclusive* feature produces a perfectly smooth exterior surface, permitting ease of cleaning. This is a very important feature for the owner to consider when purchasing a motor lamp.

This important detail and all others explained fully in our new 1908 catalog. Write for copy.

Badger Brass Manufacturing Company

TWO FACTORIES:

Kenosha, Wis. 434-11th Ave., New York

When 89% of Motor Car Manufacturers Endorse

one particular automobile lamp and equip their product with it to the exclusion of others, that lamp MUST possess unusual qualities. The consensus of opinion of men who are experts on Quality, Material, and Actual Lighting Efficiency is worth more than ordinary value.

SOLAR LAMPS

are "part equipment" on the cars of 89% of American manufacturers. They are invariably specified by car owners and dealers who desire the World's best automobile lamp.

Badger Brass Manufacturing Co.

604 Lyman Avenue - - Kenosha, Wis.

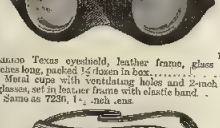
SPECTACLES, EYE PROTECTORS AND MAGNETIC POCKET COMPASSES

5 per cent extra discount allowed when full packages are ordered

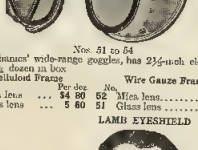
THE TEXAS EYE SHIELD

For protection against dust, wind, snow, sparks, cinders, etc. Mica lenses 2 inches long. Each in box, 12 boxes in carton.

No.	Celluloid Frame	Per doz.	No.	Wire Gauze Frame	Per doz.
300	Clear	$2 40	304	Clear	$2 80
301	Smoked	2 40	305	Smoked	2 80
302	Green	2 40			
303	Blue	2 40			



No. 56 Famous Texas eyeshield, leather frame, glass lenses, 2 ¼ inches long, packed ½ dozen in box . . . . . Per doz. $2 80
7236 Metal cups with ventilating holes and 2-inch round clear glasses, set in leather frame with elastic band . . 2 50
7226 Same as 7236, 1¾-inch lens 1 50

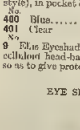


Nos. 51 to 54

Mechanics' wide-range goggles, has 2½-inch clear glass lenses, ½ dozen in box

No.	Celluloid Frame	Per doz.	No.	Wire Gauze Frame	Per doz.
54	Mica lens	$4 80	52	Mica lens	$6 80
53	Glass lens	5 60	51	Glass lens	7 60

LAMB EYESHIELD



No. 9

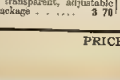
Mica lenses, metal bound, hinged at center (folding style), in pocket case, 1 dozen in carton.

No.		Per doz.	No.		Per doz.
400	Blue	$3 70	402	Green	$3 70
401	Clear	3 70	403	Medium smoked	3 70

No. 9 Blue Eyeshade, slate gray cardboard, bound with celoid, celluloid head-band! The shade is made to cover the face, so as to give protection from side lights $3 80

EYE SHADES

Nos. 4 to 4



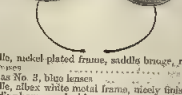
No. 5

No.		Per doz.
4	Leatherette, bound on top, brass wire rim, ½ gross in package	$1 20
1	Brown linen, green lined, leather bound on top, brass wire rim, 100 in package	2 00
2	Green celluloid, transparent, cloth-bound inner edge, elastic head-band, 1 dozen in package	1 50
3	Green celluloid, leather bound on top, brass wire rim, ½ gross in package	2 40
5	Featherweight, green celluloid, transparent, adjustable head-rim, weight ¾ oz., 1 dozen in package	3 70

SPECTACLES

Each 1 dozen in package.

No.		Per doz.
1	Coquille, riding bow temples, nickel-plated frame, smoked lenses	$1 20
2	Same as No. 1, blue lenses	1 20



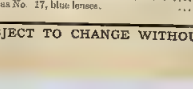
No.		Per doz.
3	Coquille, nickel-plated frame, saddle bridge, riding bows, smoked lenses	$1 50
4	Same as No. 3, blue lenses	1 50
5	Coquille, albex white metal frame, nicely finished, saddle bridge, riding bows, smoked lenses	3 60
6	Same as No. 5, blue lenses	3 60

No.		Per doz.
7	Coquille, alloyed metal frame, gold-plated saddle bridge, riding bows, smoked lenses	$3 00
8	Same as No. 7, blue lenses	3 00

No.		Per doz.
9	Mi coquille, finely nickel-plated frame, saddle bridge riding bows, very large lenses, smoked	$3 50
10	Same as No. 9, blue lenses	3 50

No.		Per doz.
11	Flat lenses albex white metal frame, saddle bridge riding bows, 1⅞-inch diameter clear lenses	$3 60
12	Mi coquille, smoked lenses, otherwise same as No. 11	3 50
13	Same as No. 12, blue lenses	3 50

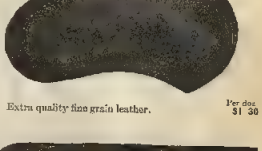
No.		Per doz.
14	Scenery spectacles, nickel-plated frame, straight temples, amber-colored lenses, used by tourists and sportsmen	$1 20



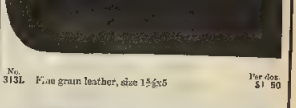
No.		Per doz.
15	White metal mounting, metal offset guard, mi coquille lenses, smoked	$1 50
16	Same as No. 15, blue lenses	1 50

No.		Per doz.
17	Albex white metal mounting, xylonite offset guard, coquille lenses, smoked	$3 00
18	Same as No. 17, blue lenses	3 00

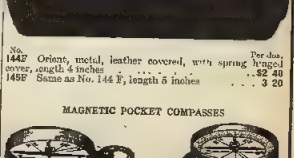
SPECTACLE CASES



No.		Per doz.
753	Extra quality fine grain leather	$1 30



No.		Per doz.
313L	Fine grain leather, size 1⅝x5	$1 50

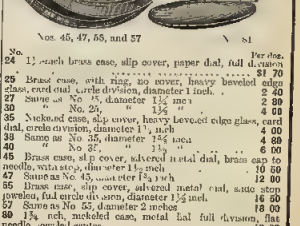


No.		Per doz.
144F	Orient, metal, leather covered, with spring hinged cover, length 4 inches	$2 40
145F	Same as No. 144 F, length 5 inches	3 20

MAGNETIC POCKET COMPASSES

Nos. 24, 25, 27, and [illegible]

Nos. 35, 38, and 40

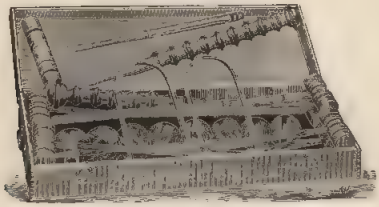


Nos. 45, 47, 55, and 57 No. 81

No.		Per doz.
24	1¼ inch brass case, slip cover, paper dial, full division	$1 70
25	Brass case, with ring, no cover, heavy beveled edge glass, card dial, circle division, diameter 1 inch	2 40
27	Same as No. 25, diameter 1¼ inch	2 80
30	" No. 25, " 1½ "	4 00
35	Nickeled case, slip cover, heavy beveled edge glass, card dial, circle division, diameter 1¼ inch	4 00
38	Same as No. 35, diameter 1½ inch	4 80
40	" No. 27, " 1½ "	6 00
45	Brass case, slip cover, silvered metal dial, brass cap to needle, with stop, diameter 1½ inch	10 50
47	Same as No. 45, diameter 1¾ inch	12 00
55	Brass case, slip cover, silvered metal dial, same stop jeweled, full circle division, diameter 1½ inch	16 50
57	Same as No. 55, diameter 2 inches	18 00
80	1¾ inch, nickeled case, metal dial full division, flat needle, jeweled center	18 00
81	1¾ inch, nickeled, watch pattern, metal dial, full division, English bar needle, jewel center	48 00

CROQUET.

STANDARD SETS.



EIGHT BALL SETS.

Per set

No. A. **A Plain Set,** Mallets oiled, Balls and Stakes varnished, nine Arches, with book complete in dovetailed box with hinged cover. Weight, per Set, 21 lbs. $1.80

No. XA. **All Parts Varnished,** Mallets painted, two eight-colored Stakes, ten Arches, with book. Weight, per Set, 21 lbs. 1.80

No. 1. **Handles, Balls and Mallets Painted and Striped,** heavy Galvanized Arches, two large Stakes. A nicely finished Set. Weight, per Set, 23 lbs. 2.15

No. 2. Mallets of Neat Design, **Balls, Handles and Mallets Painted and Striped,** two large fancy Stakes, heavy Galvanized Arches. A first class Set at a low price. Weight, per Set, 23 lbs. 2.50

No. 3. **A very Handsome Maple Set,** Shellac Finish, with fancy Mallets 6 in. long, Striped Handles and Balls, two elegant beaded Stakes, heavy Arches, with Socket. Select material in every part. Weight, per Set, 25 lbs. 3.50

No. 4. **An Elegant Set With Shellac Finish,** eight fancy Striped and Bronzed Mallets 6 in. long, Handles and Balls beautifully Painted and Striped, two elegant beaded Stakes, heavy Arches, with Socket. Weight, per Set, 25 lbs. 4.50

SIX BALL SETS.

Per set

No. 10. **Same as A,** Mallets oiled, Balls and Stakes varnished, nine Arches, with book, dovetailed box. Weight, per Set, 17 lbs. $1.10

FOUR BALL SETS.

Per set

No. 05. **A Four Ball Set,** straight Arches, in square box with hinged cover. Weight, per Set, 13 lbs. $0.80

No. X5. **A Four Ball Set,** same as XA, all varnished, in flat dovetailed box, with hinge cover. Weight, per Set, 14 lbs. 1.25

FOUR BALL PROFESSIONAL SETS.

Per set

No. 6. **Four Eight Inch Mallets, Short, Striped Handles,** two large Stakes, heavy Galvanized Arches. A very popular Set. Weight, per Set, 17 lbs. $2.00

No. 7. **Four Eight Inch Mallets With Short Handles,** Striped Balls and Mallets, two large, handsome Stakes, heavy Arches, with Sockets. A desirable Set for fine players. Weight, per Set, 17 lbs. 3.00

No. 8. **Four Nine Inch Mallets, Handsomely Painted,** short Handles, Beaded and Striped Shellac and Bronze Finish. Two elegant Beaded Stakes, heavy Arches, with Sockets, Striped Balls. A very fine Set for Professional Players. Weight, per Set, 20 lbs. 4.00

EIGHT BALL PROFESSIONAL SETS.

Per set

No. 9. **Eight Eight Inch Mallets, Short, Striped Handles,** two large Stakes, Heavy Galvanized Arches. Weight, per Set, 26 lbs. $3.00

Every set of Croquet contains a book of Instructions and Rules.

The boxes are dovetailed with hinged covers.

All Croquet crated three sets to crate.

THE "STANDARD" FIRE EXTINGUISHER

Approved by the National Fire Protective Association, under the Rules of the National Board of Fire Underwriters

The Standard is a **Safe, Reliable, Simple,** perfectly constructed **Slow Feed** 3-gallon Fire Extinguisher, built of copper and tested to stand 350 pounds pressure to the square inch.

The Bottle Cage is simple in the extreme, made entirely of brass rod. In case of accident or misuse there is nothing about cage which cannot be repaired at home.

The Bottle, a commercial shape and size and chemicals for recharging can be bought in any drug store.

Elbow connecting hose to Extinguisher has extra large interior space, positively preventing corroding or clogging up.

Top Opening for filling is a very desirable feature, it being extra large ($3\frac{1}{2}$ inches), giving plenty space for filling and interior examination.

The Hose Coupling is one of the great advantages of **The Standard.** It is a threaded connection easily attached or removed for cleansing the hose after use, which is very essential to preserve the life of the hose.

The Standard does not possess valves, stop-cocks, tubs, balls or other complicated devices. It does not require a shelf or bracket, as special adjustable handles are attached so it can be easily hung and removed from a hook or nail.

The Standard is finished in red enamel, polished copper, or nickel plate. The enameled Extinguisher is tinned outside as well as the interior, which makes it more durable and easier kept in good condition than when otherwise finished. The enamel, unless the copper is previously coated, will soon be undermined by corrosive action.

Each Extinguisher is provided with a rubber tip over the discharge nozzle to prevent same from becoming clogged, or evaporation of the liquid.

A Charge, with printed directions, included with each Extinguisher.

Always furnished in red enamel unless otherwise specified.

Price, regular, red enameled finish, each.....$15.00
Price, polished and lacquered.....16.00

Prices include charges.

THE MILLER FIRE DEPARTMENT PUMP EXTINGUISHER

Water only used; especially adapted for places where acid or chemical extinguishers are undesirable.

The body of this extinguisher is made of solid copper and the trimmings of brass. The pump is a double action force pump of solid brass. When built of other metals they are soon rendered worthless by corrosion.

Capacity: 5 gallons.

Weight: 50 pounds.

Hose: 4'½" chemical.

Stream: About 50 feet.

Finish: Handsome red enamel and striping.

Used and endorsed by Fire Departments.

It is quickly and easily refilled.

Price, each.....$15.00

RUBBER BOOTS

Wool or Friction Lined

Heavy Knee

Storm King

Heavy or Light Weight. Bright or Dull Finish.

Wool or Friction Lined.

Heavy Knee Boots. Men's Duck, per pair	$ [illegible]
Heavy Knee Boots. Men's Common, per pair	[illegible]
Storm King Boots. Men's Duck, per pair	[illegible]
Storm King Boots. Men's Common, per pair	[illegible]
Sporting Boots. Men's Duck, per pair	[illegible]
Sporting Boots. Men's Common, per pair	[illegible]
Hip Boots. Men's Duck per pair	6.85
Hip Boots. Men's Common, per pair	6.10

RUBBER APRONS

Mechanics' Aprons, per doz	$15.00
Ice Aprons, light, per doz	15.00
Ice Aprons, heavy, per doz	18.00
Dairy Aprons, white, per doz	24.00
Bar Aprons, per doz	[illegible]
Carriage Washers' Aprons, per doz	18.00
Chemists' aprons, per doz.	15.00

RUBBER GLOVES

Short

With Gauntlet

SHORT GLOVES, BLACK OR WHITE

Men's Fine, sizes 10 to 12, per doz	$13.50
Men's Fine, heavy driving, sizes 13 to 15, per doz	18.00
Men's Fine, heavy acid, sizes 13 to 15, per doz	33.00

HALF LONG GLOVES

With Gauntlet 5 inches long.

Men's Fine, sizes 10 to 12, per doz	$16.50
Men's Fine, heavy driving, size 13 to 15, per doz	[illegible]
Men's Fine, heavy acid, sizes 13 to 15, per doz	36.00

LONG RUBBER GLOVES

With Gauntlet 9 inches long.

Men's Heavy, sizes 13 to 15, per doz	$39.00

SPECIAL ELECTRICAL LINEMAN'S GLOVES

Short, extra heavy on palm, sizes 13 to 15.

Price, per dozen pairs	$24.00

RUBBER BUGGY APRONS

Enameled, dash pocket.

Price, each $3.00

In Ordering State Width of Dash

OIL CLOTHING

We are agents for Tower's celebrated Fish and Shield brands of oil clothing. They are the standard of the world.

FISH DOUBLE — TOWER'S FISH BRAND — BRAND CLOTHING

SHIELD DOUBLE — SHIELD BRAND SIZE 9 — BRAND CLOTHING

Trade Marks

FISH BRAND CLOTHING

Made double throughout, in black and yellow. They cost more to make, sell better, and are the most durable goods made. Every Fish brand garment warranted to give perfect satisfaction.

SHIELD BRAND CLOTHING

Made double throughout, in black and yellow. We guarantee the Shield brand goods equal to the first grade of other manufacturers. For durability and waterproof qualities, they are excelled by the Fish brand goods only.

CAPE ANN CLOTHING

Made double, in yellow and black, to meet the demand for a cheap grade of double goods. Unequaled for the price.

SINGLE DRILL CLOTHING

The above grade is made of fine standard drill, and is very strong and serviceable.

"SOU'WESTERS" OR WATERPROOF HATS

Cape Ann

Storm King

Soft Hat

Squam

Fish Brand

Miners'

Price per dozen

Cape Ann, Black	$5 50	Squam, Yellow or Black	$3 25
Storm King "	5 50	" with leathers	4 00
Soft Hat Yellow or Black	7.50	Fish Brand, Black	5.00
		Miner's, Yellow or Black	3 75

POMMEL SLICKERS

The Only Perfect Saddle Coat

The Fish brand pommel slicker is designed to cover both rider and saddle. While the common slicker protects the back and breast of the rider, the necessary openings at the back and front allow the storm to beat in around the saddle, thus giving a wet seat. This difficulty is entirely overcome by the pommel slicker, which, by means of extension fronts, encompasses the entire saddle, pommel and cantle, and fits closely to the back of horse, front and rear of saddle. When dismounted, the extension fronts may be overlapped, the slicker thus taking the form of an ordinary coat.

Fish brand only, black, per doz.	$36.25
Fish brand only, yellow, per doz.	35.00

FLESH FORKS AND EGG BEATERS.

FLESH FORKS.

Two Prongs, Tinned Malleable Iron.

Inches	13	15
Per Dozen	$0.80	.90

Three Prongs, Tinned Malleable Iron.

Inches	13	15
Per Dozen	$0.90	1.00

Three Prongs, Tinned Wire.

Nos.	1	2	3
Inches	13	15	17
Per Dozen	$0 40	.50	.60

One dozen in a bundle.

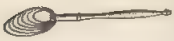
Three Prongs, Enameled Wood Handles.

Nos.	4	5	6
Inches	13	16	18
Per Dozen	$0.80	1.00	1.50

One dozen in a box.

EGG BEATERS.

SPOON.

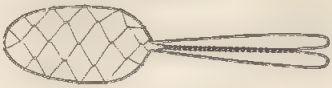


ROYAL.

	Per dozen
Spoon Egg Beaters, Tinned, Black Enameled Handle	$0.80
Royal, Tinned Egg Beater, Cream Whip and Cake Mixers	1.20

One dozen in a box.

SURPRISE.



	Per dozen
Surprise, Tinned Wire Egg Whips	$0.40

One dozen in a package.

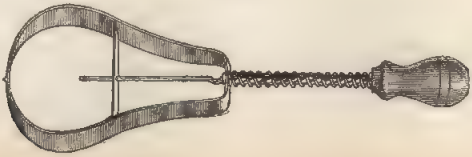
DOVER.

HOLTS.

		Per dozen
Family Size, Height 10 in		$1.30
	No. A. Height 10½ in	$1.80
	No. B. Height 12 in	2.20

One dozen in a box.

STAR.



	Per dozen
Star, One Hand Automatic Egg Beater and Cream Whip	$1.80

One dozen in a box.

STEAM SYPHON PUMPS

The Syphon is the most simple apparatus made for raising fluids by steam. It has no piston, no valves, no moving parts whatever. It is operated entirely by the direct action of steam; to set it, it is only necessary to attach the steam suction and discharge pipes; to start it, means only the opening of the steam valve.

The Syphon offers an unobstructed passage to the liquid pumped, and will pump anything smaller than the pipes; ashes, chips, rags, or other refuse do not choke it but are pumped through with the water.

HEIGHT.—The Syphon will raise water about one foot for each pound pressure of steam at the pump. If the fluid is heavier than water, this estimate must be reduced.

CAPACITY.—As given, is based upon 60 lbs. steam pressure at the pump and 15 feet lift. With a greater lift or less steam, these capacities will be reduced.

TEMPERATURE.—The Syphon can be used for pumping warm liquors but not too hot. About 140° Fahr is the limit. It will not pump boiling water, nor will it force water into a boiler like an injector.

The Pump is shown in the above cut; suction pipes are attached at CC; steam pipe at B, and discharge pipe at D; steam is turned on through the steam pipe B, and rushes across the global chamber A into D, carrying the air in A and D before it, thereby exhausting the air from A. Water to supply its place rises through the suction pipes CC from atmospheric pressure, as in ordinary suction pumps, when the steam jet forces it onward through D, with a velocity proportioned to the steam pressure applied to the pump.

No.	Capacity in Gallons per Minute	Diameter of Discharge	Diameter of Steam Pipe	Price of High Pressure Pump only for Steam Pressures of 30 lbs. or Over
3	30	[illegible]	[illegible]	$[illegible]
4	50	[illegible]	[illegible]	20.00
5	120	1½	1	35.00
6	200	2	1¼	15.00
7	320	2½	[illegible]	70.00
8	450	3	1½	90.00

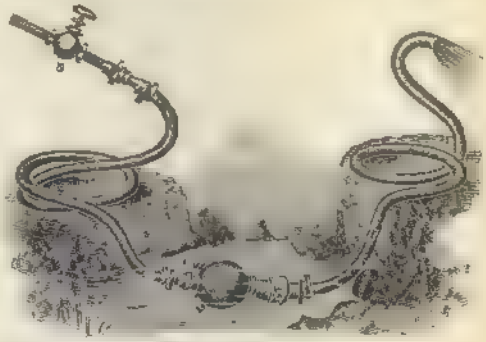
Size 7 and 8 have flanged suction. Inlet screw connections.

PORTABLE RAILWAY SYPHON

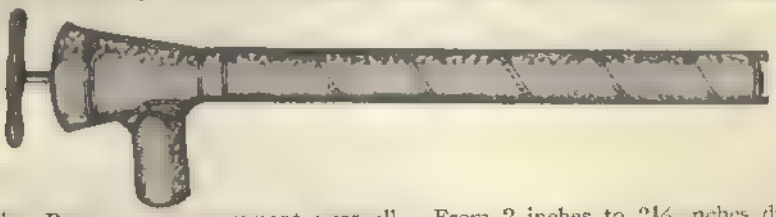
Complete with Hose and Fittings for Supplying Construction Engines with Water

For supplying locomotive tenders from any body of water within reach, near the side of the road. No. 1 will supply the ordinary quantity of water required by a tender in 10 to 12 minutes; No. 2, in 6 to 8 minutes.

No. 1 Outfit	25 feet each of steam and discharge hose...	$11 00
	50 feet each of steam and discharge hose.	105 00
No. 2 Outfit	25 feet each of steam and discharge hose	115 00
	50 feet each of steam and discharge hose...	200 00
	Without hose, No. 1...	40.00
	Without hose, No. 2...	50.00



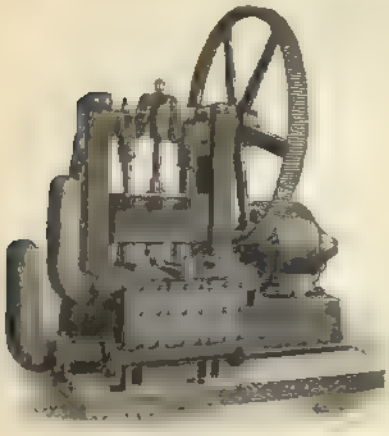
GALVANIZED, SPIRAL RIVETED BILGE PUMPS—SOLDERED JOINTS



Length of Bilge Pumps is measurement over all. From 2 inches to 2½ inches diameter inclusive pump barrels are of No. 28 BWG Spiral Lock Seam or Straight Seam Pipe; from 3 inches diameter up they are of No. 26 BWG Spiral Riveted Pipe. Pumps shorter than 5 feet are charged as 5 feet.

Diameter Inches	Standard Stock Lengths	Price per Lineal Foot
1½	5 and 7 foot	$0.82
2	5 and 7 foot	.89
2½	5, 7 and 8 foot	.96
3	6, 8, 10 and 12 foot	1.03
4	6 and 8 foot	1.18

Other lengths made to order.



ALDRICH VERTICAL TRIPLEX ELECTRIC PUMPS

Fig. 110—For Medium Pressures

The working barrels are in one casting with spherical ends, and rest for support on ledges cast on the vertical standards. The valve-chambers are in one casting with direct waterways, and are bolted to the working barrels. The pumps have large valve and water area, and are fitted with both suction and discharge chambers.

Lists and weights given below are for pumps only.

Prices quoted on pumps only or complete with A. C. or D. C. Motors.

Maximum Capacity in U. S. Gallons per Minute	Size of Pump: Plunger, Inches	Size of Pump: Stroke, Inches	Capacity per Revolution	Size of Suction and Discharge Inches Diameter	Total Working Lift 100 Feet: Motor: Size H. P.	Motor: Speed	Weight of Pump Only	Price of Pump Only	Pump with A. C. Motor	Pump with D. C. Motor
50	3½	5	0.6	3	3	900	1,500	$ 240.00	.....	.....
70	4	5	0.8	3	3½	875	1,700	260.00	.....	.....
100	4½	7	1.4	3	5	850	[illegible]	360.00		
140	5	7	1.7	4	7½	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	9	3.3	5	10	750	3,400	[illegible]		
280	7	9	4.5	6	15	650	5,100	740.00		
400	8	9	5.8	7	20	625	[illegible]	[illegible]		
560	9	10	8.2	10	25	600	[illegible]	[illegible]		
800	10	12	12.3	10	30	575	[illegible]	[illegible]		
1,120	12	12	17.6	12	50	550	20,000	2,000.00		
1,600	14	14	27.9	14	65	525	20,000	[illegible]		

175 FEET TOTAL WORKING LIFT

50	3½	5	0.6	3	3½	875	1,618	$ 258.00	.....	.....
70	4	5	0.8	3	5	850	1,828	280.00	.....	.....
100	4½	7	1.4	3	7½	800	2,478	387.00	.....	
140	5	7	1.7	4	10	750	3,333	484.00	.....	.....
200	6	9	3.3	5	15	650	3,655	591.00	.....	.....
280	7	9	4.5	6	20	625	5,483	790.00	.....	.....
400	8	9	5.8	7	30	575	6,987	1,037.00	.....	.....
560	9	10	8.2	10	40	575	11,825	[illegible]		
800	10	12	12.2	10	50	550	16,125	1,720.00	.....	.....
1,120	12	12	17.6	12	75	525	21,500	2,150.00	.....	
1,600	14	14	27.9	14	100	525	27,950	2,478.00	.....	

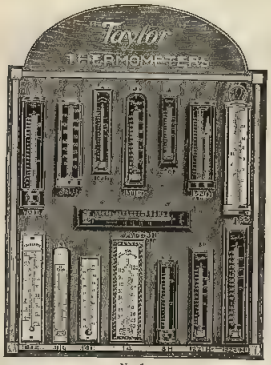
300 FEET TOTAL WORKING LIFT

50	3½	5	0.6	3	5	850	1,550	$ 276.00	.....	
70	4	5	0.8	3	7½	800	1,870	293.00	.....	.....
100	4½	7	1.4	3	10	750	2,530	414.00	.....	.....
140	5	7	1.7	4	15	650	3,410	518.00	.....	.....
200	6	9	3.3	5	20	625	[illegible]	633.00	.....	.....
280	7	9	4.5	6	30	575	[illegible]	852.00	.....	.....
400	8	9	5.8	7	40	575	[illegible]	1,110.00		
560	9	10	8.2	10	60	550	13,100	[illegible]		
800	10	12	12.2	10	90	525	[illegible]	[illegible]		
1,120	12	12	17.6	12	125	525	[illegible]	[illegible]		
1,600	14	14	27.9	14	175	500	28,500	2,645.00		

Pumps also for smaller capacities (25 to 200 gal.); for heavy pressures (350 to 1,000 ft. lifts), send for catalog.

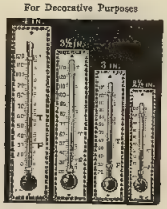
THERMOMETERS Continued

ASSORTED



No. 1

For Decorative Purposes



No. 200

FANCY

No. 85401

No. 85400

No.		Each
1	Contains 37 thermometers, 15 styles, to retail from 25c to $1 25 each with show card board for displaying thermometers, assortment retails for $19 70	$24 00
		Per card
200	Metal scales, four sizes, 2½, 3, 3½ and 4 inch, assorted, on easel back card of 1 dozen	$2 00
201	Celluloid scales, assorted, 2, 2½, 3 3½ and 4 inch, 1 dozen on card	2 50

No.		Per doz.
85401	Metal, gold plated, height 6 8¾ inches	$24 00
85400	Metal, silver finish, height 7 inches	15 80

STEREO-GRAPHOSCOPES

These instruments are made on a new principle by which they can be adjusted either for stereoscopic views or photographs and other pictures by simply reversing the lenses as shown in cut. It is practically a camera obscura, and will give a clear and beautiful effect of the view. The dark chamber around the eyes is to prevent the reflection of light on the lenses from interfering with the eyes in looking at the picture. The "Stereo-Graphoscope" shuts out all light.

No.		Per doz.
0	Cherry frame, mahogany hood, neely varnished, brass trimmings, screw handle, small lens	$9 00
2	Cherry frame, figured mahogany hood, brass trimmings, folding handle, large lens	12 00
3	Cherry frame figured mahogany hood polished brass trimmings folding handle large lens	16 00
5	Cherry frame, polished rosewood hood, polished nickel-plated trimmings, folding handle large lens	20 00
6	Solid mahogany frame, finely figured mahogany hood, highly polished throughout, polished nickel-plated trimmings, folding handle, large lens	40 00

STEREOSCOPES

No.		Per doz.
101	Hardwood frame, screw handle, ¾-inch lens, the hood is made of stained pressboard, varnished in imitation of cherry	$4 00
31½	Birch frame oiled, small lens, folding handle, pressboard hood	4 50
33	Birch frame oiled, medium size lens, folding handle, varnished birch hood	5 20
12	Hardwood frame, folding handle, polished cherry hood, lenses 1 inch square	5 60
59	Hardwood frame, folding handle, antique copper hood with felt rim, medium lens	7 00
38	Walnut frame, nicely varnished walnut hood, brass trimmings folding handle, medium size lens	7 30
44	New Century, all metal, gun metal finish, weighs 8 ounces, and has specially patented features not found in other scopes	8 00
43	Walnut frame, polished rosewood hood, brass trimmings, folding handle, extra large lens	16 80

STEREOSCOPIC VIEWS

5 per cent extra discount allowed when full packages of Nos 1 to 19 are ordered. 100 assorted subjects in box.

No.		Per 100
1	American scenery	$4 32
2	" " intermediate	5 62
4	" " colored	9 08
6	Foreign scenery	4 32
7	Chicago and vicinity	5 62
15	Plain groups, comic	4 32
16	Colored groups, "	9 08
18	Norway, Sweden and Denmark	6 84
19	Germany	6 04
44	Yellowstone Park "	5 04
45	Foreign, 50 views in a box, assorted	2 40
46	American 50 " " " "	2 40
47	Comic, 100 " " " "	2 40
48	Colored, 100 " " " "	2 00
		Per box
42	Views of San Francisco, lithographed, 25 assorted views of recent disaster, in box	44

VIEWS LITHOGRAPHED IN COLORS

We do not break packages

No.		Per pkg.
34	American views, 25 in package	$0 40
35	Foreign " 25 " "	40
36	Comic " 25 " "	40
37	Miscellaneous " 25 "	40

WATER COLORS OR TOY PAINTS

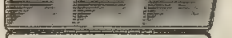
Each 1 dozen in package. Packages not broken

No.		Per doz.
605	6 moist colors, in hinged-cover, japanned tin box, size 3⅝x2¾	$2 50

No.		Per box
610	8 moist colors, in hinged-cover, japanned tin box, 1 brush, size 5x2½	$4 00

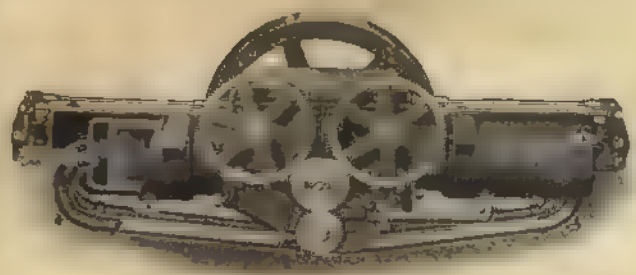
No.		Per box
611	10 colors and 2 brushes, in hinged-cover, japanned tin box, china pans, size 2¾x5	$8 00

No.		Per doz.
601	12 moist colors (in pans) and 2 brushes, in hinged-cover, japanned tin box, size 6⅝x3	$5 00

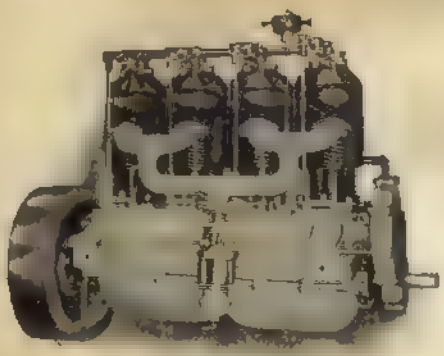


No.		Per doz
604	12 moist colors (in pans) and 2 brushes, in hinged-cover, japanned tin box, with hinged flap, which can be used as a palette	$8 00

No.		Per doz
602	12 moist colors (in pans) and 2 tubes and 3 brushes, in hinged-cover, japanned tin box, size 6¾x3½	$8 80



If interested in the most powerful line of motors ever produced, considering weight where bearing surface and strength have not been sacrificed, write for circulars giving full description.



Double opposed motors built in two sizes, 5 x 5-18 H. P. and 5 x 7-24 H. P. Four cylinder motors in three sizes, 4 x 5-30 H. P., 4½ x 5½-40 H. P. and 5 x 5½-50 H. P.

MODEL GAS ENGINE WORKS
PERU, INDIANA, Lock Box 2033
EASTERN AND FOREIGN OFFICE:
B-21 Produce Exchange, New York

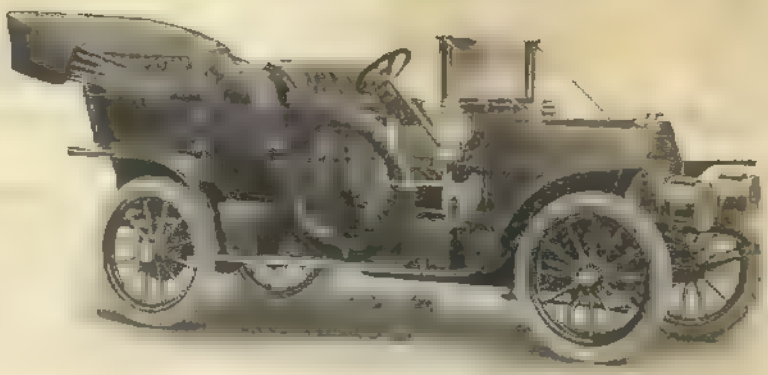
Stewart
PRECISION
Carburetor

New
Principle
No
Springs
Stays Right
30 Days' Trial

Stewart Machine Works
Los Angeles, Cal.

THE JEWEL

The Non-Skidding Car



SPECIFICATIONS

Rutenber Motor.
Bore and Stroke—4¾"x5".
Double Ignition.
Double Oiling System.

Timken Axles and Bearings.
Hedgeland Non-Skid Differential.
36" Wheels

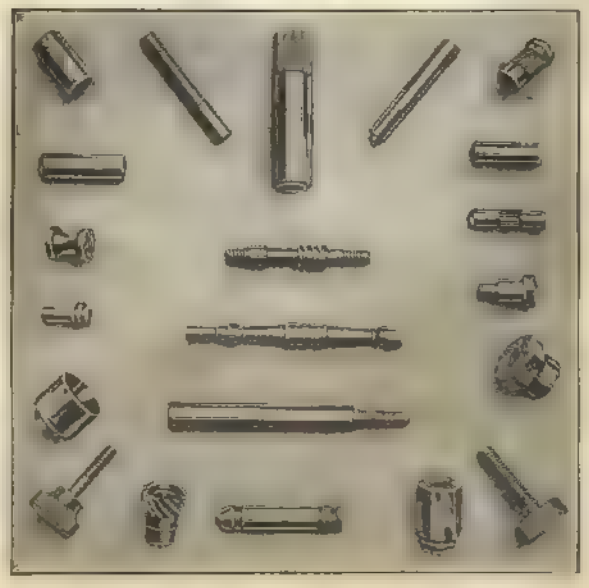
36"x4" Tires.
120" Whee. Base.
7 Passenger Body.

WRITE FOR CATALOG.

The Forest City Motor Car Co., 114 Walnut St., Massillon, Ohio

BROWN & SHARPE MFG. CO.
PROVIDENCE, R. I., U. S. A.

SMALL DUPLICATE PARTS



As Produced on B. & S. Automatic Screw Machines.

Send us Samples of your Work and we will give Estimates of Production.

Shows No. 1 Belted Fan, 7 feet Diameter

Diam. of Fan	Capacity in Cu. Ft. Per Minute	Belted Fan	[illegible]
5 ft.	20,000 to 2[illegible],000	[illegible]	[illegible]
7 "	4[illegible],000 to 5[illegible],000	[illegible]	[illegible]
10 "	5[illegible],000 to 7[illegible],000	425.00	885.00
12 "	75,000 to 100,000	[illegible]	1175.00

THE "STINE" MINE VENTILATING FAN

GREAT CAPACITY — FORCE OR EXHAUST
SMALL DIAMETER — NO DOORS
PERFECT BALANCE — SOLID HUBS
FLANGE STEEL VANES — NO VIBRATION
HIGH EFFICIENCY — PERFECT LUBRICATION
LOW COST OF ERECTION

The outside casing is made of steel, while the vanes or blades are of the best quality of flange steel, securely braced to an auxiliary hub. The shaft is of best hammered steel and the hub or center is one solid casting of best gray iron and keyed to the shaft. The hub is drilled from the solid and reamed out to the exact size for the reception of the vanes, which have a tapered sleeve riveted to them, making a perfect fit with large frictional contact. The construction of the entire fan is such that no single piece occupies much space and it can be "knocked down" and be transported with the positive assurance that each piece will fit perfectly when it is reassembled.

Fans are carefully designed with a large factor of safety.

Can be used either as an "exhauster" or "blower" without the use of a single door and can be changed from one to the other in a moment.

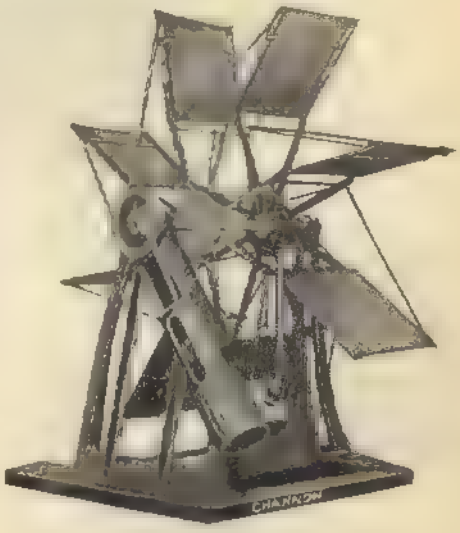
MOTOR DRIVEN FANS QUOTED UPON REQUEST

STEAM FANS FOR VENTILATING COAL MINES

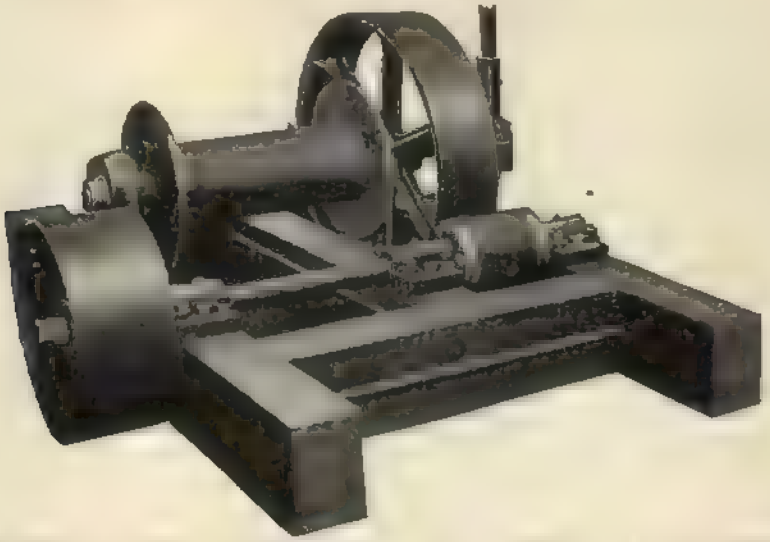
The illustration shows the construction of Fan and Engine which has met with general favor wherever used. The Engine is of special design; vanes are made of steel. They are inexpensive to set and need no outlay for repairs. We do not build the wood casing but furnish drawings for same.

The cubic feet of delivery in the following table is estimated upon a free and open discharge to the mine. The efficiency of any fan is governed by the arrangement of the air courses for unobstructed circulation, and an allowance must be made for friction necessary to be overcome in distributing the air through the passages, our estimate being at the mouth of the shaft. No governor is required as the vanes of the fan serve for that purpose. Straight vanes will be furnished when required.

Diam. of Fan, Feet	Size of Engine, Inches	Revolutions Per Minute	Capacity Cu. Ft. Per Min.
20	12 x 16	1[illegible] to 7[illegible]	150,000
18	12 x 16	1[illegible] to 85	100,000
16	10 x 14	15 to 100	80,000
14	8½ x 10	15 to 100	70,000
12	8½ x 10	15 to 100	60,000
10	7 x 10	15 to 120	40,000
8	7 x 10	20 to 130	30,000



SINGLE DRUM, FRICTION, BELT HOIST



No	Hoisting Capacity on a Single Line Lbs	Horse Power Required	Revolution of Pulley per Minute	Diameter and Face of Pulley, Inches	Diameter of Paper Friction Inches	Diameter and Face of Friction Wheel, Inches	Diameter of Drums and Length Between Flanges, Inches	Floor Space Required Inches	Shipping Weight Pounds	Price
1 U	500	5	250	16 x 6	8	24 x 5½	8 x 16	40 x 70	1100	$140.00
2 U	1000	8	250	18 x 8	10	30 x 6½	8 x 20	44 x 80	1500	160.00
3 U	1500	12	250	20 x 10	12	34 x 7½	8 x 20	50 x 90	2000	190.00

COMMON SENSE STEEL MINER'S WHIM OR HORSE-POWER HOISTING MACHINE

1 Horse whim, speed 80 ft. per min.
2 Horse whim, speed 110 ft. per min.

The one horse whim will hoist from 650 to 1,000 lbs. of material in addition to weight of rope and bucket at a speed of 60 to 80 feet per minute. Whims are so constructed that they can be readily taken apart and packed in sections for mule back. Sweep is of oak and extra strong. The proper rope is ½ inch circular steel, the drum will wind up 18 feet of rope every time the horse goes round a circle. Fitted with a strong brake strap going entirely round the drum presenting large contact breaking surface. Attached to frame is a safety lock. This device locks the drum automatically whenever the horse stops, or if the single tree, harness or other part of the mechanism breaks, thus preventing the bucket from running back in the shaft, and when the horse starts up again the lock releases itself and permits the drum to wind the bucket up.

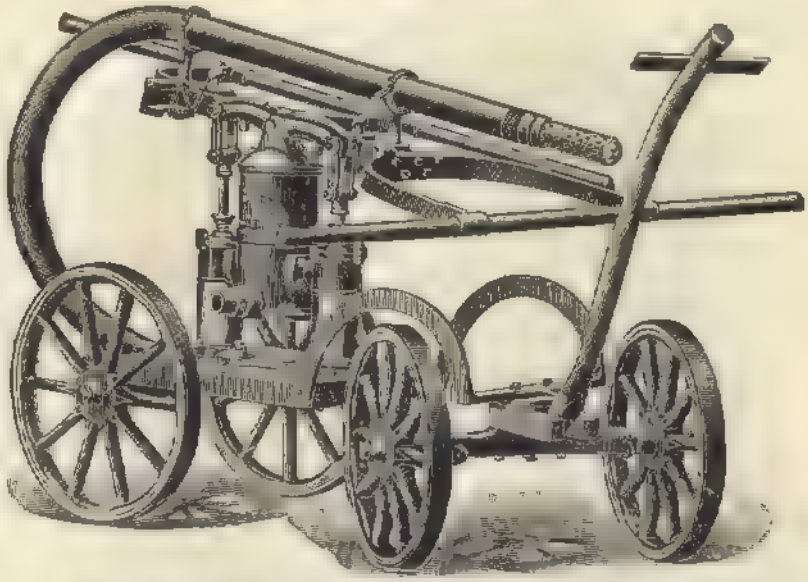
The two horse whim is same as one horse, except that it has a larger drum wheel, two sweeps and two single-trees. Wheel is 7½ ft. diameter and two horses at an ordinary walk will hoist from 750 to 1,200 lbs about 110 ft. per minute.

1 horse whim Net weight 900 lbs. Gross weight 1,300 lbs 75½ cu. ft. Price $150.00
2 " " " " 1,400 " " " 2,100 " 157 " " Price..... 200.00

Prices include wrench, oiler two sheaves for ½-inch wire rope including boxes and bolts, all the levers, connecting rods and every bolt and piece of iron work necessary. Also blue print for setting up.

SWAN-NECK VILLAGE FIRE ENGINE

With Gun-Metal Cylinders



The accompanying illustration faithfully represents our *Swan Neck Village Fire Engine* a mounted *Fire Pump*, and the wonderful service It has only to be seen to command the attention and appreciation of thousands of people that live in *Villages and Towns* where there is *no fire protection* whatever We claim, that with this *Fire Pump* we can furnish a town where there is no regular system of water works, *better and cheaper fire protection* than with any other class of fire apparatus, and we give the reasons why we can do so, as follows

It is a powerful Pump.

It is substantially mounted on a carriage combining *strength, durability and the least possible weight.*

It can be moved from one location to another with but from one to four men.

It can be moved over the street sidewalks, when in wet weather and muddy roads it would be impossible to move a ***heavy hand engine or a steam fire engine***

It can be operated to its maximum capacity with from *six to ten men* and at a fire it is always easier to find six men willing to work on the brakes than twenty-five.

It is better than a steamer for small towns and villages, as it can be easily moved to a fire, in good or bad weather

It will subdue an incipient fire just as easily as a heavier or more cumbersome machine, and when fires are too far along to subdue, it will deliver sufficient water to control it and protect adjacent property

It can be taken through ordinary gates into back yards narrow alleys, in fact, where water may be found to supply it.

It will lift water from a well or cistern 25 feet deep and discharge the water through any length of hose desired.

It will throw water from 60 to 90 feet horizontally and from 50 to 70 feet perpendicularly.

The extreme distance, however, that it will throw water is not material for protection To put out fires city fire departments *do not depend on distance that an engine will throw, but on men*, carrying the nozzle as close to the flames as possible, and delivering *the greatest quantity of water possible on the flames.*

A sprinkling of water from the end of a 75 to a 100 feet stream only creates gas that aggravates the flames. *Use hose, and get the water to the flames.*

If you want an engine for *Fourth of July and holiday parades*, don't buy the little *Swan Neck Engine —it is only for fire protection.*

If your town is large enough, buy two or three of them.

Fire department authorities in the United States claim that for small towns and villages such an outfit as we furnish is incomparably more valuable than any other class of apparatus

Sizes and Prices

No.	Size Cylinders	Suction Fitted for	Discharge Fitted for	Stroke	Gallons per Revolution	Price Without Hose Etc.
4	4½ inch	2½ inch Hose.	1½ inch Hose	6 inch	8 gal	$250.00
5	6 "	3 " "	2 " "	8 "	1.96 "	350.00

A complete outfit consists of pump and 25 feet of suction hose with couplings and strainer, and from 100 to 500 feet rubber lined cotton fire hose with automatic couplings and screw tip nozzle.

THE "EMERSON" QUICK-CLEANING STRAINER AND FOOT VALVE

Strainer in Pumping Position

Never necessary to take up suction to clean strainer. No hinges or springs to get out of order. Applied to suction of any pump. Intake areas largely exceed size of pipe. Cannot cock or clog the valve. Strainer always seats itself properly. Easy to clean and keep clean—simplicity itself. Can be raised, cleaned and lowered in position in less than one minute.

The strainer is made of heavy perforated flange steel, the perforations being 7-16 inches in diameter in all sizes above four inches, and is riveted to a substantial top casting having a collar that fits loosely around the suction pipe, so that it can slide up and down without cramping, and the suction pipe acts as a guide. It is raised and lowered by the ropes, as shown.

THE FOOT VALVE has no spindle, spring or hinge, but operates freely in guides cast into the valve body, making it possible to get large and generous openings through the valve with only a low lift of the gate, which prevents hammering and shocks, and is a very desirable feature. The waterways are equally as free and unobstructed as those where ball valves are used. The waterways are not only large, free and direct, but largely exceed the area of the pipe upon which the valve is used.

Strainer Partially Raised for Cleaning

Suction Pipe, Inches	Price of Foot Valve and Strainer Complete	Price of Strainer Without Foot Valve	Suction Pipe, Inches	Price of Foot Valve and Strainer Complete	Price of Strainer Without Foot Valve
2	$11.50	$ 5.75	8	$ 44 75	$ 22 37
2½	12 00	6 00	10	82 00	41 00
3	16 25	8 12	12	113 00	56 50
3½	18 00	9.00	14	145 00	72 50
4	20 00	10 00	16	190 00	95 00
5	26 25	13 12	18	235.00	117 50
6	33 00	16 50	20	265 00	132 50
7	38.50	19.25	24	400.00	200 00

STANDARD IRON FOOT VALVES WITH STRAINERS

(SCREWED

Fig. 76. Iron Foot Valve and Strainer

Size inches.		¾	1	1¼	1½	2	2½	3	3½	4
Fig. 76.	Painted	$1.15	$1.30	$1 [illegible]	$1 [illegible]	$2 40	$3.3[illegible]	$3. [illegible]	$5 60	$ 7.30
"	Galv'd..	1.75	2.00	2.10	2.85	3.60	5.00	5.75	8.50	11.00
Fig. 92.	Painted	.22	.25	.33	.44	.5[illegible]	.82	1.10	1 75	2 [illegible]
"	Galv'd.	.30	.34	.4[illegible]	.58	.80	1.20	1.70	2 00	3.00

Size inches.		5	6	7	8	10	12
Fig. 76.	Painted	$11 2[illegible]	$14 25	$35 00	$41 00	$64 00	$100 00
"	Galv'd	16 75	22 00	...	...	....	....
Fig. 92.	Painted	2 50	3 50	...	...	...	...
"	Galv'd.	3 90	5 00	...	...	...	...

Fig. 92. Cast Iron Strainer

THE SHURE WINNER PRICE LIST

POPULAR SWISS WATCHES

PRICES ARE NET

"THE ROSKOPF SYSTEM" WATCHES

With Slip-Cog Winding Gear, preventing overwinding and spring breaking.

No. 773.

No. 776. Roskopf System Watch. 14 size plain polished german silver case, gold plated, antique crown and bow, stem wind, slug set, jeweled lever movement, hinge back, inside glass cap. Excellent running and timekeeping watch. Movement is constructed with a safety slip cog which prevents overwinding or breaking of spring; is guaranteed same as an American watch. Each 1.76

No. 773. As above, 18 size. A good desirable and reliable watch for any man. Each..... 1.50

No. 1223H. As above, with colored raised crystal figures on white dial, 14 size. Each 1.90

A NEAT GOLD PLATED GENTLEMAN'S WATCH.

No. 1841.

No. 1841. Men's Gold Plated Watch. Very pretty, new flat model, antique bow and crown, snap front, hinge back, fancy gold hands, white enamel dial with neat color tinting in the figure zone, good jeweled nickel movement; a very attractive and genteel open face watch; should be a seller of the first type with any dealer, 16 size. Each 2.25

LUNAR CALENDAR WATCHES.

No. 3260

No. 3260. Calendar Watch, gun metal case, tinted and gold decorated enamel dial with four subdials showing day of the week, month of the year and the date of the month, the second dial also showing in perspective the phases of the moon, each dial has individual and independent setting gear, hinge front and back, inside glass cap, 7 jewel bridge model, exposed winding wheel, nickel, movement, well finished; a handsome watch all around, stem wind and set. Each 3.75

No. 260. Perpetual Calendar, similar to above. Each 3.25

N. 7152

Seth Thomas Complete Watches

THESE ARE EXCELLENT TIMEKEEPERS FOR A LOW PRICE.

This well known reliable make of watches has steadily gained public favor solely on their excellence and merit. It is now classed with best and highest price watches made, grade for grade, and while the quality and excellence can't be bested the price is much lower and in favor of the buyer and consumer.

PRICES QUOTED ARE NET CASH.

No. 7151. Seth Thomas, 18 size complete watch, open face, S. B. & B. nickel case, 7 jewel damaskeened movement, ¾ plate, guaranteed. Each net 3.00

No. 7152. Seth Thomas, complete watch, as above, 7 jewel in nickel solid back, cup case. Each net 3.60

No. 7153. As above, 15 jewel in cup case. Each net 4.88

No. 7154. Seth Thomas, 18 size watch, 7 jewel movement, in Hunting five year gold filled case, engraved. Each net 4.31

No. 7155. Seth Thomas, 18 size watch, 15 jewel fancy damaskeened movement, 10 year, fine gold filled engraved case, Hunting. Each net 5.81

No. 7156 As above, S. B & B open face, 15 jewel. Each net 5.48

No. 7157. Seth Thomas, 18 size watch, 17 jewel high grade demaskeened full plate movement, 20 year, genuine high grade gold filled case, engraved Hunting. Each net 10.57

No. 7158. As above, S. B. & B. open face Each net 8.57

No. 7159. As above, 25 year guaranteed case, Hunting Each net.. 13.17

No. 7160. As above, 25 year, S. B. & B. open face. Each net 10.64

THE SHURE WINNER PRICE LIST

Attractive Swiss Watches--

Nice Appearing Low Price Goods suitable for Jewelers, General Trade or Premium Purposes.

PRICES ARE NET

No. 1000. "Elroy" Watch, for boy or youth, 12 size, O. F., gold hands with second, plain French enameled dial, gilt reflector, crown and bow, stem wind and set, fine gun metal case, hinge back, glass cap, 7 jewel cylinder nickle movement. Each 1.64

No. 1018H. As above, 16 size Gun Metal. New flat model, snap back. Each 1.75

No. 25. As above, 16 size Nickel. New flat model. Each..... 1.75

205.

No. 205. Men's Watch, 16 size. Raised embossed crystal figures in colors on white dial, gold fancy hands, plain polished german-silver case, antique bow and crown, snap front, hinge back, glass inside cap, jeweled nickel movement, stem wind and set. New flat model. Each 1.90

No. 213. As above, 16 size Gun Metal, satin finish. Each.....2.05

No. 1238H.

No. 1238H. Men's Watch, 16 size. New flat model, very thin satin finish gun metal, open face case, antique bow and crown, stem wind and set, jeweled nickel movement, italic figures, radiating gold dial, snap front and back. Each....2.10

No. 1177H. As above, gold plated, plain polished case, grey steel dial, black italic figures; very thin. Each 2.15

No. 1069H. As above, blue polished, gun metal case, grey steel dial italic figures. Each 2.25

1200H.

No. 1200H. Watch, bright blue polished gun metal case, flat model, 16 size, delicate tinted enameled dial, with cut-out gold metal frame over-all, showing figures through in round panels, blue steel hands and second, antique gilt bow and crown, stem wind and set, snap front, hinge back, 7 jewel cylinder nickel movement; the latest out. Each..... 2.15

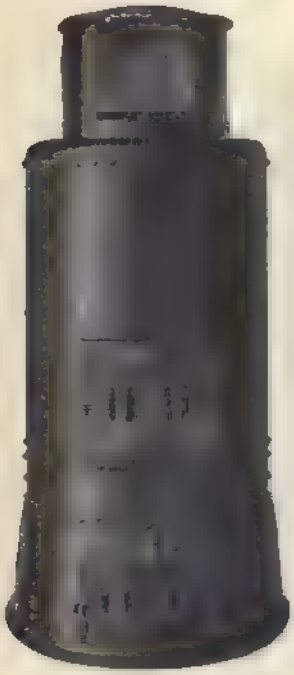
No. 94. Men's Watch. Silver crown with antique bow, open face, satin finish gun metal case. Roman or arabic figures, snap front and back, damaskeened gilt, jeweled movement. New 16 size flat model, enameled white dial, blued steel hands, pendant wind and set; good timekeeper. Each.....2.40

No. 645. Men's Watch, gun metal case, etched in checker board and other fancy patterns, tinted and gold decorated dial, gold hands and second, snap front with hinge back, 7 jewel nickle movement, cylinder escapement, stem wind and set; one of our most popular sellers. Each 2.68

TABASCO WATER HEATERS

ALL STEEL — SELF-FEED AND SURFACE BURNERS

FOR USE WHEREVER HOT WATER SUPPLY IS NEEDED



Magazine Feed or Surface Burner

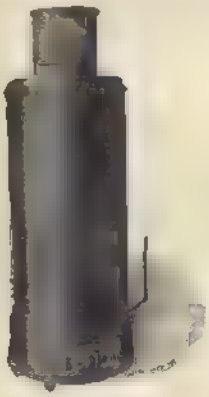
Price List and Dimensions

Heater	Heating Capacity, Gallons per Hour	Size of Heater, Inches	Total Height, Inches	Sizes Flows and Returns	Weight	Price Magazine Feed	Price Surface Burner
17	130	17 x 30	52	2-1½	400	$ 78.00	$ 64.00
18	150	17 x 36	57	2-1½	420	82.00	68.00
21	200	21 x 30	52	2-2	520	93.00	77.00
22	250	21 x 36	59	2-2	550	100.00	84.00
23	300	21 x 42	65	2-2	580	107.00	90.00
24	350	21 x 48	71	2-2	610	113.00	95.00
25	300	25 x 36	59	2-2	780	143.00	120.00
26	350	25 x 42	65	2-2	810	150.00	126.00
27	400	25 x 48	71	2-2	840	158.00	133.00
30	500	30 x 42	65	2-3	1,100	171.00	140.00
31	600	30 x 48	75	2-3	1,150	180.00	150.00
32	700	30 x 54	81	2-3	1,240	188.00	160.00

Magazine Feed Heaters are always shipped unless Surface Burners are specified in order

TABASCO JUNIOR WATER HEATERS

SURFACE BURNERS ONLY



Price List and Dimensions

No.	Size of Heater, Inches	Gallons per hour	Size Flows and Returns	Weight	Price of Heater
1	10 x 16	30	1	125	$38.00
2	10 x 18	40	1	130	40.00
3	12 x 24	65	1	200	48.00
4	12 x 30	80	1	215	50.00
5	15 x 30	100	1¼	280	56.00
6	15 x 36	120	1¼	300	60.00

All Junior Heaters, except Nos. 1 and 2, have Front Fire Doors

WILKES' WATER HEATERS

Cut Shows Not Self-Feeder

Specially Adapted for Heating Water for

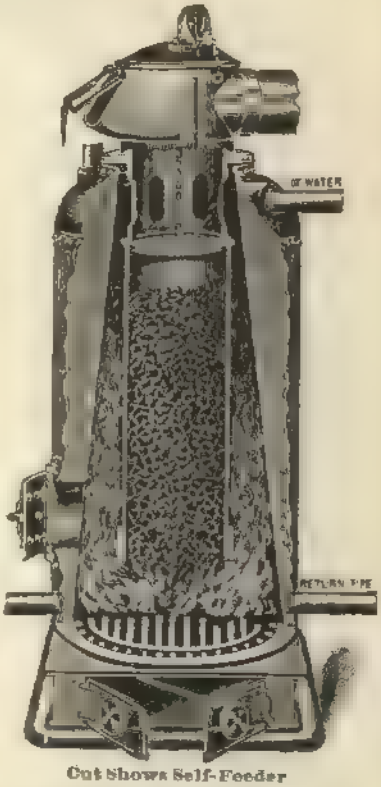
Dwellings	Laundries
Barber Shops	Conservatories
Baptisteries	Poultry Houses
Carving Tables	Etc.

Perfectly Safe, Easily Managed, Economical in Fuel

Can be Set up as Easily and Quickly as an Ordinary Stove. Every Heater is TESTED to 100 Pounds Cold Water Pressure.

Can be Used with Either Hard or Soft Coal

The Motion of the Water Being Entirely Vertical Insures an Active and Steady Circulation



Cut Shows Self-Feeder

SMALL SIZES NOT SELF-FEEDERS WITH FEED BOX WITH OR WITHOUT FIRE DOOR

Fire Door in Shell Extra

SIZES, CAPACITY AND PRICES

Size of Boiler, Inches	Heating Capacity Gallons per Hour	Size of Connections Inches	Heating Surface Sq. Ft.	Approximate Height of Heater Inches Pipe Inches	Height to Top of Tank Inches	Approximate Weight, Pounds	Price, without Fire Door
For Carving Tables, etc. 10x18	40	¾	399	60	25¼	75	$21.00
For Private Residences 12x24	65	1	648	100	32¼	120	25.00
Residences, etc. 12x30	75	1	792	125	38¼	130	26.50
Small Conservatories 14x30	100	1¼	945	150	41	180	30.00
Laundries, etc. 14x36	125	1¼	1,066	175	46	190	32.00

SELF-FEEDERS WITH COAL MAGAZINE

Size of Boiler, Inches	Heating Capacity Gallons per hour	Size of Connections Inches	Approximate Heating Surface Sq. Ft.	Extreme Height of Heater Inches	Approximate Weight, pounds	Price, with Coal Magazine
16 x 30	140	1¼	250	57	340	$ 57.50
16 x 36	150	1¼	300	63	380	61.00
20 x 30	200	2	425	60	445	72.00
20 x 36	250	2	450	64	500	75.00
20 x 42	275	2	500	70	530	80.00
24 x 36	325	2	700	66	700	105.00
24 x 42	350	2	900	72	710	110.00
30 x 42	600	3	1,200	75	1,230	130.00
30 x 48	700	3	1,250	81	1,280	135.00
36 x 42	900	3	1,450	75	1,950	185.00
36 x 48	1,000	3	1,570	81	2,000	195.00
42 x 42	1,200	3	2,000	78	2,600	215.00
42 x 48	1,300	3	2,400	84	2,700	225.00

TAMPERS

Correct Designs. Best Material and Workmanship

Style 1

Style 2

Style 3

Style—Combination Curb

Style	Trade Number	Size of Base, Inches	Wood Handled: Weight Finished, Lbs.	Wood Handled: Price per Doz.	Pipe Handled: Weight Finished, Lbs.	Pipe Handled: Price per Doz.
[illegible]	[illegible]	8x8	13	$20.00	15	$22 [illegible]
1	[illegible]	10x10	16	22 00	[illegible]	[illegible]
1	30	12x12	26	24 00	[illegible]	27 [illegible]
2	[illegible]	5x6	9	12 00	[illegible]	15 [illegible]
2	[illegible]	6x7	13	14 00	15	16 [illegible]
[illegible]	[illegible]	7x8	14	15 00	16	17 [illegible]
[illegible]	[illegible]	8x8	15	[illegible]	17	18 [illegible]
[illegible]	[illegible]	[illegible]	20	[illegible]	[illegible]	[illegible]
2	[illegible]	5x6	[illegible]	[illegible]	[illegible]	[illegible]
3	[illegible]	7 inch Diam. Rod	20	[illegible]	[illegible]	[illegible]
Curb	[illegible]	[illegible]	3	[illegible]	[illegible]	[illegible]
Curb	75	4x4	5½	12 00	7½	[illegible]
Curb	[illegible]	3½x6	6½	12 50	7½	[illegible]
Combination Curb	85	x3½ x[illegible] Orbone Handle	8½	21 60	12	25 00

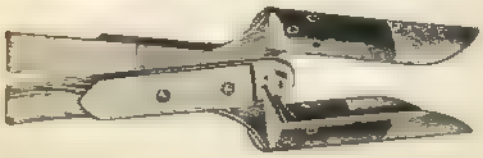
COBBLE RAMMERS

Price each..... $10 00

POST HOLE AUGERS

4 to 9 inch blades..... per doz., $18 00

EUREKA POST HOLE DIGGERS



Length 5 feet, blades 9 inches long weight 100 lbs. to dozen. list, per dozen..... $15 00

Extra Heavy Augers for Telegraph Poles

Size Blades, Inches	Complete, Price Each	Extra Points, Price Each	Extra Blades, Price Each	Extra Bottoms, Price Each
10	$7 00	$1 00	$1 00	$3 00
11	7 50	1 00	1.25	3 50
12	8 00	1.00	1.50	4 00
14	9 00	1 00	2 00	5 00

Above prices are for 5 foot handles; longer at advanced price.

RAILROAD TRACK TOOLS

RAILROAD TRACK TONGS

Weight per pair 17 lbs.....list per lb., $0.30

RAIL FORKS

Weight each 15 lbs .....list per lb., $0.25

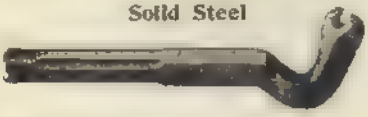
CLAW BARS

With Heel. Solid Steel

Weight each 29 lbs.....list per lb., $0.18

GOOSE NECK CLAW BARS

Solid Steel



Weight each 25 lbs.....list per lb., $0.18

CAR STARTER BARS

Weight each 28 lbs.....list per lb., $0.22

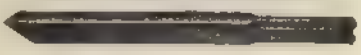
CROW BARS

Wedge Point. Solid Steel

Weight each 11 to 40 lbs.....list per lb., $0.12

CROW BARS

Pinch Point. Solid Steel



Weight each 11 to 40 lbs.....list per lb., $0.12

LINING BARS

Needle or Diamond Point. Solid Steel

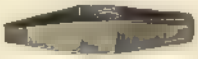
Weight each 18 to 30 lbs.....list per lb., $0.15

TAMPING BARS

Solid Steel

Weight each 14 lbs..... list per lb., $0.16

TRACK PUNCHES



Punches 1½ inches square, weight about 4¾ lbs. each... . . list per lb., $0.40

TRACK CHISELS

Chisels 1¼ inches square, weight about 4¾ lbs. each . ...list per lb., $0.40

TRACK MAULS

Weight 5 to 12 lbs.....list per lb., $0.40

TRACK WRENCHES

Single End

Weight each 4½ lbs .....list per lb. $0.25
Allows specify sized nut to be used on.

TRACK WRENCHES

Double End

Weight each 6 lbs.....list per lb., $0.45

R. R. WATER BARRELS OR KEGS

Made of Seasoned Quartered Oak with Hinged Cover and Handles

Size	Weight [illegible]	Price each
5 Gallon	12 lbs.	$1.60
10 Gallon	20 lbs.	2.00
15 Gallon	25 lbs.	2.70
20 Gallon	30 lbs.	3.20
30 Gallon	40 lbs.	3.70
50 Gallon	50 lbs.	5.00

The Autocar

Established 1895

The Leading British Motor-Car Paper

Established in advance of all others and still far ahead of them all

Profusely Illustrated

¶ "The Autocar" provides week by week, an interesting and authoritative review of the progress of automobilism in the United Kingdom, and should be read by every progressive maker and dealer, who "knows how" to benefit by the experience of others.

Subscription Rates

	United States and Foreign Countries	Canada
Twelve Months . .	22 8	17 6
Six " . .	11 4	8 9

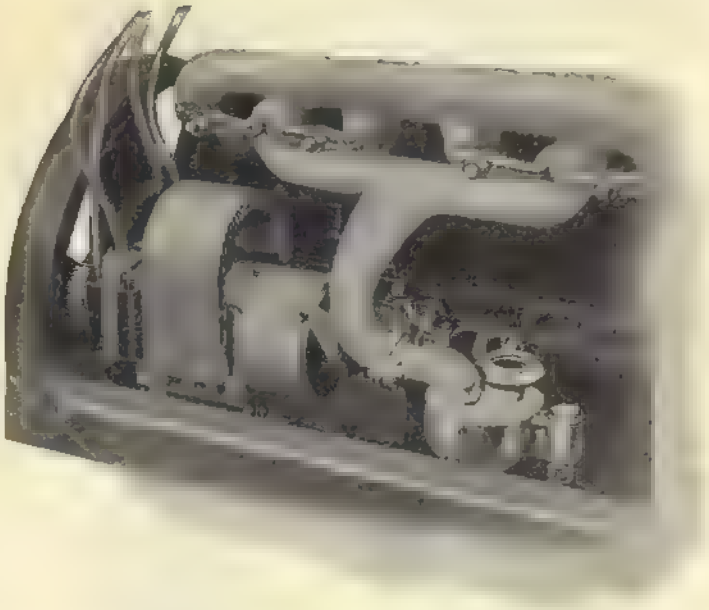
P. O. Order to be made payable to "The Autocar"

¶ American manufacturers of motor vehicles and accessories who wish to expand their business should look to the British Isles. The market is a rich one and by advertising in "The Autocar" it is possible to reach the entire BUYING section of the public which is interested in Automobilism.

May we quote you our advertising rates?

ILIFFE & SONS, Ltd., 20 Tudor Street London, E. C., Eng.

This Illustration shows the HOLLEY MODEL W CARBURETOR and the NEW HOLLEY MAGNETO



on a Ford Runabout. Since we first offered the Model W Carburetor last summer, we have sold over 1000 to replace the carburetors with which the Ford Runabout is equipped. The reason is simply that a motor car can be run slower and quieter with a Holley Model W than with any other carburetor offered. It is not a spraying carburetor, and it makes a perfect mixture at speeds lower than the spraying type will touch. What this means in flexibility, responsiveness, ease of control and peace of mind, any Ford owner who has tried a Holley can testify.

The Holley is not only the most flexible, but the simplest carburetor made, and the easiest for the novice to adjust. The catalog explains it fully.

PRICES, ¾ in., $11; 1 in., $12; 1¼ in., $13; 1½ in., $16

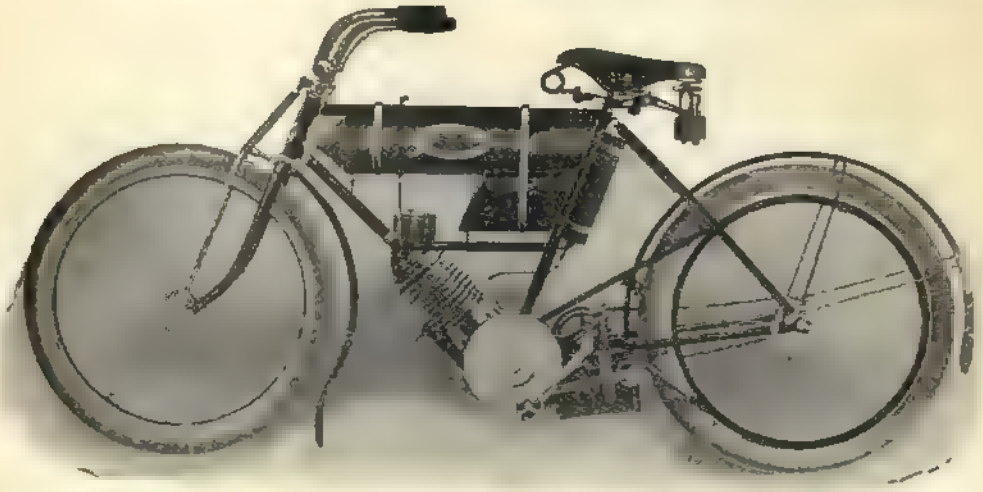
Special models for Fords, Maxwells, Olds, Ramblers, Mitchells, Wintons and other standard makes. Write for catalog.

HOLLEY BROTHERS CO., Detroit, Mich.

= = AGENTS = =

PACIFIC COAST. San Francisco—Geo. P. Moore Co.; Oakland, Geo. P. Moore Co.; Los Angeles, Geo. P. Moore Co.
NEW ENGLAND: Hartford—Post & Lester Co; Boston, Post & Lester Co.
ITALY: Genoa—Italian Import & Export Co.
FRANCE: Paris—C. M. Sauerbach, No. 12 Rue Portalis.
BELGIUM: Brussels—Henry Wilford Co.

THE AUTO-BI



A Successful Motor Cycle

Should have plenty of power to climb hills easily.

Should have a practical (tried and tested by the public) method of transmitting power from engine to rear wheel.

Should have a grip control which will not tire the wrists by hanging on to a loose grip, and yet be under the instant control of the rider.

Should be equipped with an auxiliary exhaust port to keep motor cool, and add to power and speed, by getting rid of exhaust gases quickly.

Should have motor hung as near the center of machine as possible and very low to make machine steer easily and so the rider does not have to *straddle a hot motor*. Motor should be placed as near horizontal as possible so that explosive force and vibration is exerted on a line with momentum of machine and rider, thus doing away with vibration.

Motor should have solid forged crank shaft *hardened and ground* to *size* (all automobiles use one piece shafts why?) inside of motor should be easily accessible without removing motor from frame. Cases split horizontally, as in the Auto-Bi, allow this.

Truss spring cushion forks are indispensable for safety and comfort.

It should be equipped with flusher valve for easy starting at all times.

It should have ample tank capacity for touring purposes.

It should present a graceful pleasing appearance with each part in harmony and built for the particular purpose to which it is put.

A SUCCESSFUL AGENT

Will insist on securing a motorcycle which includes each of the above features. This will assure him of a machine which will be easily sold, and will stay sold, and a motorcycle which he can recommend and build up a business with.

A SATISFIED CUSTOMER

The buyer of the 1908 Auto-Bi will get a machine that is guaranteed for the year. It is safe, comfortable powerful, speedy, can be easily controlled by the novice, and is a strictly high grade machine, with many features originated by us and found only on the Auto-Bi.

CATALOGUE AND TERMS ON REQUEST

The Auto-Bi Company 1453 Niagara St. Buffalo, N. Y.

4½ H. P engine lengthwise and horizontal. Belt drive. Please answer questions in next issue. I am a subscriber.—E. F. COLE.

To fire at regular intervals the crank shafts should be opposed the same as the cylinders. Where both connecting rods are attached to the same crank arm the impulses cannot take place at regular intervals.

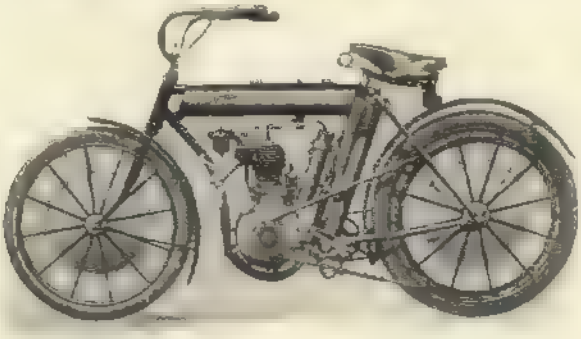
Your design in a general way is good and the machine should be a success if the details are carried out in the proper manner.—C. H. M.

(If your motor actually develops 4½ H. P., it ought to stand a gear of 3 to 1, which will give you at 2 000 R. P. M. of the engine, 31.5 miles per hour. If you desire high speed and are willing to sacrifice some on hill climbing ability, you might even use 2½ to 1 giving about 61.8 miles per hour.—Ed.)

"Indestructible" Wheels for Motor Cycles

The Indestructible steel wheel which was heretofore only furnished for automobiles and trucks, has recently been applied to the motor cycle and is now produced by the Indestructible Steel Wheel Co., 1221 Michigan Ave., Chicago, Ill., in suitable sizes for this purpose.

The claims made for these wheels are that they can never warp, swell or shrink, besides being extremely strong and durable. All danger of getting twigs, and other obstructions between spokes is also eliminated by the use of this make of wheel and, in short, the several advantages claimed for it in automobile use can practically all be credited to it in its new field of usefulness.



Armac motor cycle fitted with "Indestructible" steel wheels.

S. F. Heath, New England agent for Thiem motor cycles, who has maintained a temporary office in Newtonville, Mass., has now secured permanent quarters at 288 Columbus avenue, Boston. Mr. Heath is a pioneer in the motor cycle business.

Mr. W. F. Mann, of the W. F. Mann Motor Co., of Yonkers, N. Y., who has during the past year represented the F. N. motorcycle in his home city, will open up a motorcycle establishment in Boston at 1000 Boylston street, to handle the F. N. Big Four and possibly one or two other machines

The road officers of the New York Motorcycle Club for this year are promoting a number of century and reliability runs and hill climbs. The initial contest of the season will include a century and a double century, to start on Decoration Day, Saturday, May 30th, and finish Sunday, May 31st. The route will be over the Patchogue and Southampton course.

Motor Cycle Catalogs

Whipple, "the motorcycle man" of Chicago, Ill., has sent us a most comprehensive assortment of circulars descriptive of many motorcycle sundries. Practically everything needed by the motor cyclist is mentioned and among the new things is a motorcycle headlight and generator which sells at $10, including a bracket for the generator. Most of the leading makes of motorcycles are also included in the line represented.

In the 1908 catalog of the Corbin-Duplex coaster brake, Corbin two-speed coaster brake and Corbin front and rear hubs, are very excellent detail illustrations of these products of The Corbin Screw Corporation, of New Britain, Conn., and it is altogether a very creditable publication. The operation of the coaster brakes is explained fully, showing that the company appreciates the value giving complete information regarding its products. The cover design includes an illustration of the coaster hub, accompanied by the words, "Corbin Hubs, 1908," all embossed and standing out in pure white against a light brown background.

A new motorcycle organization has been formed in Boston, which will be known as the Massachusetts Motor Club, and is composed of devotees of the sport in Greater Boston.

F. A. BAKER & CO.
MOTORCYCLE SUPPLIES
SEND FOR CATALOGUE
37 Warren St., New York

The Wagging Tongues of Satisfied Customers

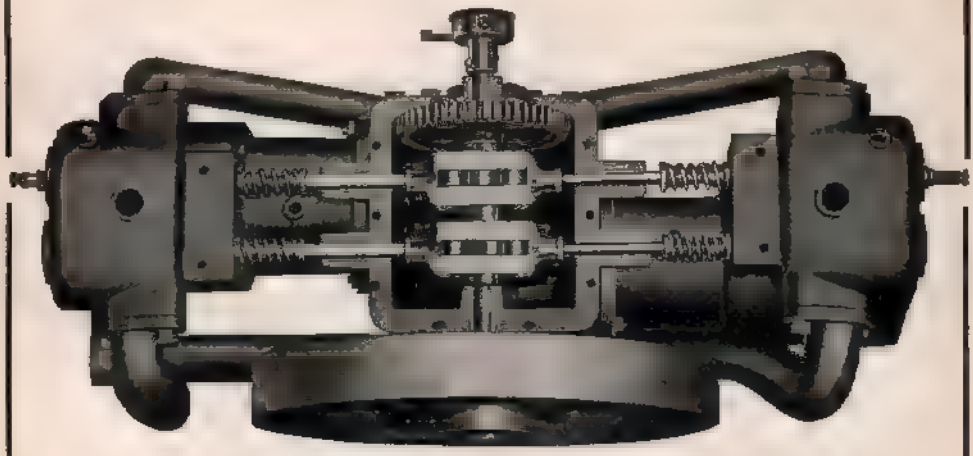
Our Best Advertisement

Beilfuss Two-Cylinder Motors

are not made merely to sell, to give average service. They are *built to be the best* -built as well as we know how after years of painstaking experiment, concentrated effort, and noteworthy success.

Water-Cooled and Air-Cooled Styles

Water-cooled in sizes 10-12 H. P. and 18-20 H. P.
Air-cooled in one size, 10-12 H. P.

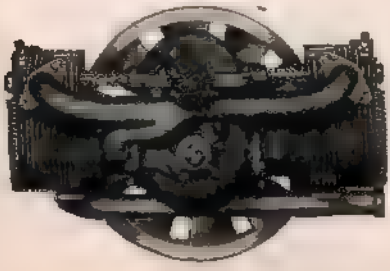


NO ONE makes a real SPECIALTY of two-cylinder MOTORS but the BEILFUSS MOTOR CO.

In use in every STATE in the UNION and a number of foreign countries.

There are no *better* double-opposed-cylinder Motors *made anywhere*, and none made better.

YOU want the best, don't you? Then send to-day for convincing circulars and prices.



We guarantee workmanship, material and operation.

We assure quick delivery.

NO FUSS ABOUT THE BEILFUSS.

The Beilfuss Motor Co.

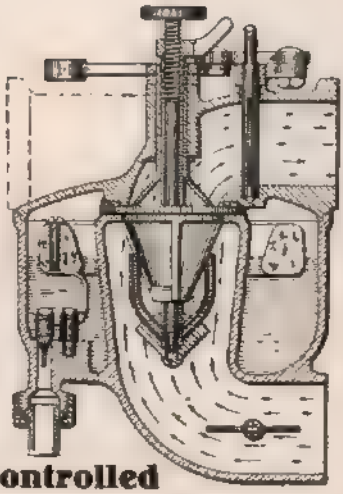
LANSING, MICH., U.S.A.

A Sectional View

Showing the Working
Arrangement of the

BUFFALO CARBURETOR

is so Convincing of its Simplicity that an Order Always Follows its Inspection. Let Us Send You One.



The Only Mechanically Controlled Carburetor on the Market

The Buffalo Carburetor Co.

887-889 MAIN ST., BUFFALO, NEW YORK

National Sales Corporation, Factory Sales Managers, 296 Broadway, N. Y. City

THE EXCELSIOR AUTO CYCLE

Light Running. Silent. No Engine Vibration.

THE "ONE MAN RUNABOUT"

IS JAM FULL OF NEW FEATURES — BIG STRONG POINTS OF PRACTICAL ADVANTAGE—new applications of engineering resource and skill —new combinations and fine adjustments —BRAND NEW IDEAS worked out to the last detail of perfection—all combined to make the finest riding machine ever sent out from a factory shipping room.

A FEW SPECIAL FEATURES ARE

LOW SADDLE POSITION
LONG WHEEL BASE
EASY RIDING POSITION
PERFECT SPRING FORK
LOW DISTRIBUTION OF WEIGHT

EXCELSIOR 3 1-4 H. P. Guaranteed. Price, $225.00

Write for Details and Agency Proposition. Send for Motor Cycle Supplies Catalogue "A"

EXCELSIOR SUPPLY COMPANY

233-235-237 Randolph St., Chicago

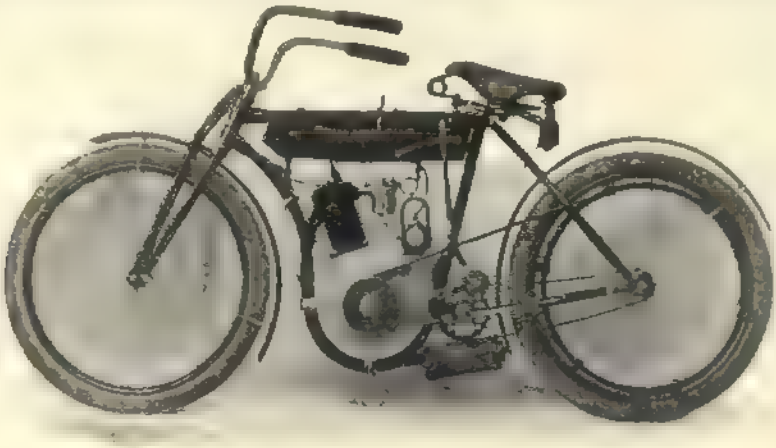
The 1908 Bradley

Bradley Motor Co., 268 Diamond street, Philadelphia, offers its 1908 motorcycle with either magneto or battery ignition, listing at $250 or $225, respectively. The Bosch high tension magneto is furnished. This 1908 Bradley is driven by a 3½ H. P., 3¼ x 3⅝ motor and is guaranteed for one year against defects in material or workmanship. Hence this machine is calculated to meet the requirements of those who desire a strong, reliable and powerful motorcycle, and the option on ignition apparatus is in harmony with the popular vogue. Back of the machine stand the eight years' experience of the maker in repairing and building motorcycles

Right Side View Bradley, 1908, Motor Cycle.

The motor is rated at 1800 r. p. m. The cylinder and head are integral and cast of a smooth, close grained, gray iron, and the bore is ground to size. The piston is made as light as is safe and is fitted with three rings and four oil grooves. A tool steel pin connects the piston to the rod which is held in place by a tapered screw fitted with a split cotter pin. The rod is a steel drop forging and has a long, phosphor bronze bushing. The valves have steel stems and cast iron heads 1½ inches in diameter, with 45-degree tapered seats. The cam shaft gears are in a case on the outside of the crank case and are easily accessible without disturbing other parts of the motor. The Bradley floatless carburetor is used.

Transmission is by means of a 1½-inch, waterproof, double, flat belt cemented and riveted, the belt being adjustable from the saddle. Control is in the grips exclusively, and it is unnecessary to remove the hands from the handlebars at any time. An exhaust valve lifter is provided to relieve compression and make easy starting.



Left Side View Bradley, 1908, Motor Cycle, with Bosch High Tension Magneto. Price, $250.

The equipment includes Person's improved motor saddle, extra wide mudguards, No. 3 Standard, rubber motorcycle pedals, 28 x 2½ G & J tires, tool bag and tools. The tank holds 6 qts. gasoline and 2 qts. lubricating oil.

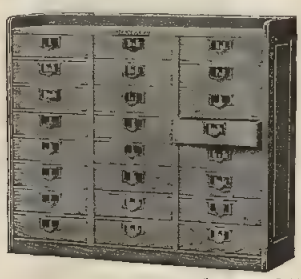
FILES—Continued

It is impracticable for either manufacturer or jobber to carry all numbers of these cabinets in stock. It is best, therefore, to allow at least a week's time in which to fill order

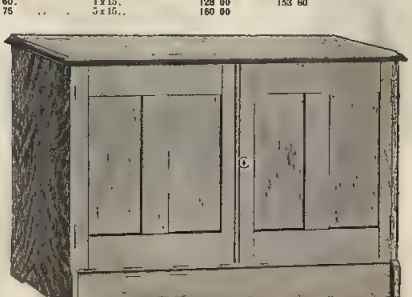
THE HARVARD CABINET

The cabinets are labeled and indexed complete to suit the purchaser. In ordering, please state the arrangement of index desired. An extra charge is made for cost of work for book, or special or other files. Shoe cabinets are made in golden oak only.

Dimensions. A cabinet two files wide and 2 feet 4½ inches wide, three files wide, 3 feet 6½ inches wide, and for each additional file, add 1½ inches. A cabinet three files high is 1 foot 2 inches high, and for each additional file 4 inches higher, though certain of the larger sizes have 6 inches extra on base, as shown in cuts. Cabinets without curtain are 12½ inches deep; with curtain, 14¾ inches deep and 6 inches higher.



No. of Files	Size	Open Front Each	Curtain Front Each
2	1 x 2	$ 6 40	$ 12 00
3	1 x 3	8 00	13 20
4	1 x 4	10 60	15 20
6	1 x 6	15 20	21 60
6	2 x 3	18 40	26 40
12	2 x 6	25 60	34 40
15	1 x 15	32 00	42 80
18	3 x 6	38 40	51 20
24	3 x 12	51 20	66 40
24	3 x 8	51 20	66 40
30	2 x 15	64 00	81 20
36	3 x 12	76 80	96 00
45	3 x 15	96 00	117 60
60	4 x 15	128 00	153 60
75	5 x 15	160 00	



Showing base with doors

THE YALE CABINET

No. 24½

Cases made of quarter sawed oak. Files open from the side, similar to a book. Drawers are dust proof, and have spring compressor on side, which keeps the file and contents in compact form. In ordering, please specify arrangement of index desired.

No.	No. of Files Wide	No. of Files High	Height Inches	Width Inches	Open Front Each	Curtain Front Each	No. of Files Wide	No. of Files High	Height Inches	Width Inches	Open Front Each	Closed Curtain Each
2	2		16½	17½	$12 00	$15 60	24½	8	3	42½	43¾	$82 80	$92 40
4	4		25	17½	21 60	25 20	30	10	3	51	43¾	100 80	112 80
6	6		33¾	17½	28 80	33 60	36	12	3	60	43¾	118 80	133 20
6½	3	2	20½	31	28 80	33 60	36½	9	4	46¾	56½	118 80	133 20
12	6	2	33¾	31	46 80	52 80	48	12	4	60	56½	153 60	170 40
15	15		75	17½	56 40	63 60	60	12	5	60	69½	187 20	206 40
18	3	2	46½	31	64 80	72 60	60½	10	6	50½	82¾	187 20	206 40
18½	6	3	33¾	43¾	64 80	72 00	72	12	6	51	82¾	222 00	243 60
24	12	2	60	31	82 80	92 40	..						

THE LAKESIDE CABINET

Cases made from solid oak, varnished. The advantages of these Cabinet Files are that the Transfer Cases and Indexes are all in one and can be easily removed and are perfectly dust proof. In ordering, please specify arrangement of index desired.

No.			Each
1	2 File Cabinet, 2 files high,	16 in. wide, 13 in. deep and 8 in. high	$ 4 00
9	3 " " 3 " "	16 " " 13 " " 11 " "	6 00
10	4 " " 4 " "	16 " " 13 " " 14 " "	8 00
2	6 " 6 "	16 " " 13 " " 20 " "	12 00
3	12 " 6 "	1 files wide 30 " " 13 " " 20 " "	21 00
4	12 " 4 "	1 " 43 " " 13 " " 14 " "	21 00
5	18 " 6 "	2 " " 33 " " 13 " " 20 " "	31 50
6	18 " 6 "	1 " 43 " " 13 " " 20 " "	31 50
7	24 " 8 "	1 " 43 " " 13 " " 26 " "	42 00
8	24 " 12 "	2 " 30 " " 13 " " 26 " "	42 00

Extra Transfer Cases with Indexes, per dozen, $6.00.

BASES

With Doors

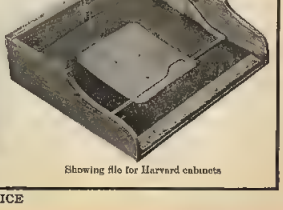
No.		Each
4	For 2 section cabinets, 34 in. wide, 32 in. high, 17 in. deep	$21 30
5	" 3 " " " 36 " " 32 " " 17 " "	22 00
6	" 4 " " " 50 " " 32 " " 17 " "	26 50

With Curtain Front

No.		Each
1	For 2 section cabinet, 34½ in. wide, 28 in. deep, 34 in. high	$41 00
2	" 3 " " " 47 " " 28 " " 34 " "	44 50
3	" 4 " " " 60 " " 28 " " 34 " "	55 00

A 2 section base will hold 36 transfer cases.
A 3 " " " " 48 " " "
A 4 " " " " 60 " "

Showing 3 Files open front

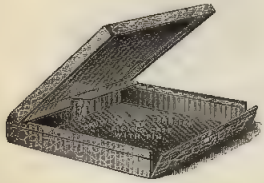


Showing file for Harvard cabinets

BROWN'S PERFECT LETTER FILES, TRANSFER CASES AND INDEXES

FILES

No.		Size, inches	Style	Per doz.
31B	Telegram	6 x 9 x3½	Cloth	$25 00
315A	Letter	10½x12 x3½	Paper	25 00
315B	"	10½x12 x3½	Cloth	30 00
324A	Invoice	10½x14½x3½	Paper	30 00
324B	"	10½x14½x3½	Cloth	35 00

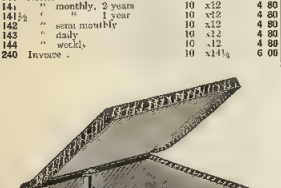


TRANSFER CASES

No.		Size, inches	Per doz.
4	Bill	9½x10½x3	$4 50
14	Letter	10½x12 x3	4 50
114	"	10½x12 x3, with pin	4 50
16	" for Style 83 index	10½x12 x3 " "	4 50

INDEXES

No.		Size inches	Per doz.
100	Bill	9½x10	$4 80
140	Letter	10 x12	4 80
141	" monthly, 2 years	10 x12	4 80
141½	" " 1 year	10 x12	4 80
142	" semi monthly	10 x12	4 80
143	" daily	10 x12	4 80
144	" weekly	10 x12	4 80
240	Invoice	10 x14½	6 00



TRANSFER FILING CASES

Wood frame, strawboard top and bottom

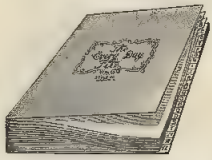
No.		Size, inches	Per doz.
315	Letter	12 x10½x3½	$4 50
316	Invoice	14½x10½x3½	6 00

INDEXES

No.		Inches	Per doz.
310	Telegram	6x 9	$4 80
3340	Letter	10x12	4 80
3341	" monthly, 2 years	10x12	4 80
3341-12	" 1 year	10x12	4 80
3342	" semi-monthly	10x12	4 80
3343	" daily	10x12	4 80
3344	" weekly	10x12	4 80
325	Invoice	10x14½	6 00

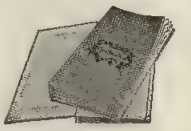
Prices of special sizes and of other styles on application

FILES—Continued



EVERY DAY

No.		Per doz.
1	Contains 20 leaves, document manila, alphabetical, indexed, gray pressboard covers, size 10x12	$ 7 68
2	Same as No 1, 31 leaves, numbered 1 to 31.	9 60
3	Same as No. 1, more substantially made with blue tagboard leaves, cloth tab index and covers	12 80
6	Same as No 3, 7 leaves, indexed days of week, Monday to Saturday, and one special	9 60
4	Same as No. 3, 31 leaves, numbered 1 to 31	16 00

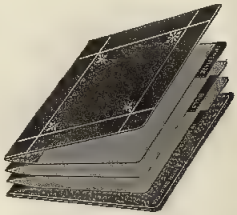


LEGAL BLANK

Handsomely bound in cloth, strongly made, has 20 compartments alphabetically arranged, and also numbered from 1 to 20. Index on inside of front cover

Size 10x15 inches — Per doz. $19 20

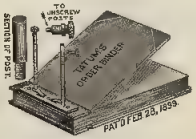
GLOBE DESK PORTFOLIO



A temporary file for papers to which it is desired to refer before placing in permanent file. It contains 4 compartments labeled respectively, "Immediate," "In Suspense," "Future Consideration," and "Bills and Statements," back having ample expansion, size 10 x12½ inches.

No.		Per doz.
1	Embossed leatherette	$14 40
2	Undressed goatskin, red, green, or tan	28 80

AUTOMATIC SECTIONAL POST BINDER



Full canvas, posts ¾ inch in diameter five 1-inch sections, one ½-inch section and a cap for each post, automatic catches bearing against the posts bind firmly few or many sheets

Dimension first named is binding side.

No.		For Sheets	Center to center of posts	Price per doz.
806		6 x 9½	2¾	$34 80
811		8½x11	4½	34 80
814		8½x14	4¼	42 00
815		9½x12	4¼	42 00

LOOSE SHEET HOLDERS AND BINDERS

Prices of special sizes and of other styles on application

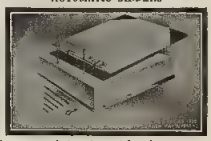
HOLDERS

Full canvas, double hinge, steel spring on back, released by bending covers back, holds firmly from 1 sheet to 150 sheets.

Dimension named first is binding side

No.		For sheets	Each
148		4½x 8½	$0 78
149		5½x 8½	90
142		6 x 9½	96
143		8½x11	1 14
146		11 x 8½	1 38
144		8½x14	1 44
147		9½x12	1 44
145		12 x 9½	1 44

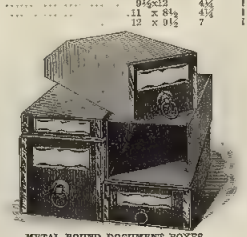
AUTOMATIC BINDERS



Full canvas. Automatic catches bearing against the posts bind firmly few or many sheets Sheets easily inserted or removed. Capacity about 1,500 sheets.

Dimension named first is binding side

No.		For sheets	Posts inches center to center	Each
1		4½x 8½	2¾	$1 38
2		5½x 8½	2¾	1 44
4		6 x 9½	2¾	1 50
6		8½x11	4¼	1 56
7		8½x14	4¼	1 80
8		9½x12	4¼	1 80
9		11 x 8½	4¼	1 92
11		12 x 9½	7	1 92



METAL BOUND DOCUMENT BOXES

Made of pressboard, metal label holders and rings attached to all excepting 1-inch box, which has label holder only. Size 10x4½ inches.

No.		Per doz.
30	1 inch high	$3 20
32	2 " "	3 60
34	3 "	4 00
36	4 "	4 40
38	5 "	4 80

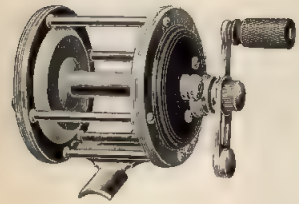
BARLER'S SAFETY DOCUMENT FILE

Enameled metal case, strong manila pockets, separate and removable. Pressing down wire rod throws the pockets forward showing index on back

No.		Each
10A	Size 3x8½x10⅞ inches closed, contains 25 pockets 4½x10⅝ inches.	$3 00
20B	Size 4⅞x5½x10⅞ inches closed, contains 35 pockets 4½x10⅝ inches	3 50

REELS.

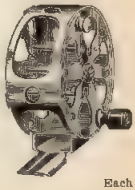
CARLTON SUPERIOR QUADRUPLE.



The Superior Quadruple is a reel adapted to various styles of fishing where a strong, light reel is required; it is not only Superior in name, but superior in its class; hard black rubber enters very largely into its construction —the disks being made entirely of this material, which are bound with strong metal bands of brass, nickeled; the two sides, or disks, are firmly joined together by heavy pillars; the spool, pole plate and handle are of brass, heavily nickeled and finely polished the bearings of steel and bronze, eliminating wear; the combination of the bright nickel and black rubber parts is very pleasing, besides adding a degree of solidity and lightness impossible to obtain otherwise.

With Plain Bearings.		Each	With Jeweled Bearings.		Each
No. 180P.	80 Yards	$4.50	No. 180J.	80 Yards	$5 50

CARLTON IDEAL.



The Ideal Reel meets every requirement of the expert angler as well as the amateur fisherman, and is adapted for all classes of fish as well as the different methods used in fishing; it is exceedingly free running, friction being reduced to the minimum; is light in weight and particularly adapted for bait or fly casting; it is made of brass, finished in nickel or gun metal; the bearings are reinforced at wearing points and perfectly centered and balanced, it has backsliding click that is positive in action, and large open spool, which insures the line drying quickly and winding the line as speedily as a quadruple reel; the handle on No. 1 is hard rubber, neatly chased, preventing its slipping in the hand and adding to its appearance; the No. 2 has large handle and firm grasp, the reel may be taken apart by simply removing one screw, a ten-cent piece or any similar article may be used for this purpose

For a universal reel, the Ideal meets every requirement

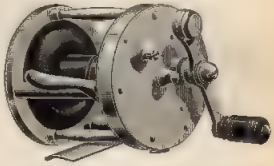
		Each
No. 1.	80 Yards, Spool Measures 2¼ x 1 in	$1 50
No. 2.	120 Yards, Spool Measures 3¼ x 1⅛ in.	2.00

THE HUNTER E-Z-APART.

Full German Silver, large barrel rubber spool running in phosphor bronze bearings, which are riveted to side plates and have no caps to become lost; frame studs run through both heads of reel, and are rigidly locked in place with locking ring, doing away with all screws usually used, reel can be taken apart and put together again in less time than it takes to tell about it; only three parts, as seen in cut; reel is strictly high grade and guaranteed in every way.

	Each
Hunter E-Z-Apart Reels	$5.00

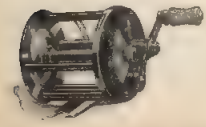
THE HUNTER FREE SPOOL E-Z-APART.



Quadruple Gear, German Silver, phosphor bronze bearings, strong, durable and strictly high grade in every respect, the best bait casting reel made, reels of the take-apart variety are justly becoming very popular and our mechanism is acknowledged by all to be the best and simplest, in bait casting the wear on the gears and bearings is so excessive that heretofore only the highest priced reels would stand the wear, our Free Spool Reel will outwear any reel costing three or four times as much money and at the same time any fisherman, novice or expert, can do better bait casting with far less liability of "back lashing" owing to the removal of the momentum of the handle and heavy metal spool; all the wear on our reel comes on the hardened steel balls running in hardened steel ball races, by a slight pressure on the trigger with the "thumbing" the art of bait casting may be acquired with much less practice than with any other reel.

	Each
The Hunter Free Spool E-Z-Apart Reels	$8 00

THE MARHOFF PERFECT.

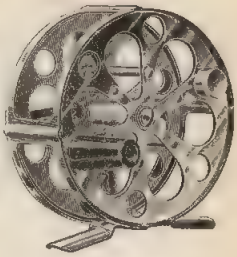


A Very Fine Quality All-Round Reel; Quadruple multiplying, with automatic distribution of line insuring a perfect wind every time, so that back lashing is almost entirely avoided; equipped with the new "Marhoff" graduated click, which makes it thoroughly practical and desirable for fly casting and trolling, as well as bait casting; this reel is simple in construction and beautifully designed; it is made of hard drawn and rolled brass, finished in non-reflecting nickel, hard rubber head case and celluloid handle; the pinion, spool, screw and gearshaft are made from the very best quality of drill rod; the bearings are of tobin bronze, weight 7 ounces, capacity 100 yards, put up in fine chamois lined leather case.

	Each
No. 82. Marhoff Perfect Reels	$15.00

MEISELBACH REELS.

THE FEATHERLIGHT.

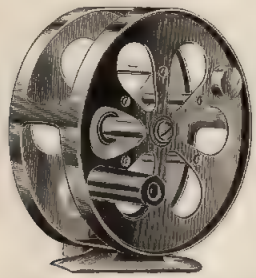


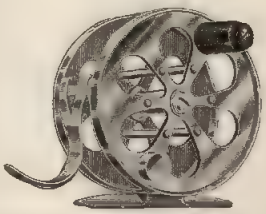
Nickel Plated, the lightest reel made, Frame and Reel Seat are made of one piece; absolutely no screws to jar loose and become lost. Removable Spool. Back sliding, double pointed steel click and steel spindle. We consider this to be the **Cheapest, Lightest and Strongest Reel made. Finely finished.**

N. B. The click is made of Hardened Steel, equalled only in the most expensive reels, and is not to be compared with clicks in other low priced reels.

		Per dozen
No. 250.	**40 Yards,** Spool 1¾ x ¾ in., for Trout....	$10.00
No. 260.	**60 Yards,** 2¼ x ¾ in., for Trout or Bass..	15.00
No. 290.	**100 Yards,** Spool 3 x 1 in., for Bass.....	21.00
No. 280.	**Bass Bait Casting, 80 Yards,** Spool 2¾ x 1 in.,	24.00

THE EXPERT.





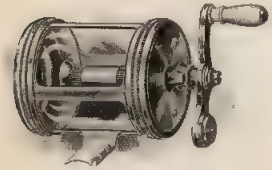
New back sliding Click, patented Brake Guard, with Removable Spool, extensively used in lake or river fishing. Nickel Plated.

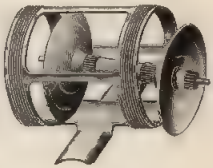
		Each
No. 17.	**100 Yards;** Diameter, 3 in.; Width, 1 in.....	$2.50

With back sliding Screw Click, Steel Spindle and Detachable Thumb Drag, Removable Spool, Nickel Plated.

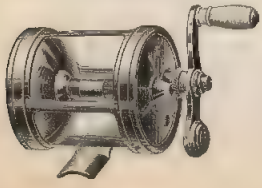
		Each
No. 22.	**200 Yards,** 12 Thread Line; Diameter, 3 in.; Width, 1½ in.....	$3.25

TUBULAR FRAME TAKE-APART.





		Each
No. 4	**80 Yards,** German Silver Spool, 1¾ x 1 5/32 in. Long, All Metal, with Click	$6.00



THE TRI-PART.

The Bearings are steel and bronze, ground to perfect fit, highly polished and are very smooth running and noiseless; it has quadruple gearing, greater capacity for its size than any other bait casting reel made: the capacity is 80 yards, but in size is no larger than a 60-yard reel (on account of the tubular frame construction) so could be sold for 60 or 80-yard capacity.

The click is made of hardened steel, tempered in oil, the adjusting cap has friction device, preventing back lashing, which also overcomes any looseness or wearing in the bearings.

		Each
The Tri-Part, 80 Yards, Width of Spool 1 5/16 in., Diameter 1¾		$3.50

THE MARMON

"A Mechanical Masterpiece"

Marmon "Thirty-Two," $2400

The Most Value Ever Offered In a Motor Car

Before buying any car, take the detailed specifications and compare them—item for item with the specifications of the Marmon "Thirty-two."

See what you actually get and what you pay extra for. Look at the size of tires and brakes, power, character of ignition, bearings, lubrication, etc.

You'll find that so-called cheap cars are not so cheap, and that no car at $3000 offers so much actual value as this car at $2400 Built as carefully as a fine watch, built to be durable and thoroughly dependable.

Genuine Krupp and Chrome Nickel Steels used in important parts. Bosch magneto and battery dual system. Hess-Bright bearings. Weight (weigh it), 2000 lbs. 32-40 H P. Big Tires (34x4 all around). Fully equipped. Touring Car, Roadster, Four-Passenger Suburban with removable rear seat, or Limousine Town Car.

TO DEALERS: This car is a winner. Your competitors will have to take off their hats to it.

The superb Marmon "Fifty" (with Seven-Passenger or Four-Passenger Body), $3750.

Nordyke & Marmon Co. (Estab. 1851) Indianapolis, Ind.

Standard Mfgrs. A. M. C. M. A.

We will exhibit in New York only at Grand Central Palace Show, opening New Year's Eve.

The Easiest Riding Car In The World

The Importance of Good Cylinder Oil

cannot be over-estimated. The very efficiency of your engine depends on the quality of your oil.

PANHARD OIL

does not char the piston heads, combustion chambers, or clog the spark plugs.

It is the one perfect cylinder lubricant. Be sure to ask for the oil in the checker-board can.

GEO. A. HAWS,

72 Pine St. - NEW YORK

¶ That Mirror marked one of the most important steps in the development of the modern searchlight. It took into account the scientific principles which underlie the mirror, which is the vital part of the lamp—the direction and diffusion of the light rays so as to project not only the greatest ***volume*** of light, but also to project the light just where it is required. The searchlight that is not fitted with the

Bausch & Lomb Searchlight Lens Mirror

is not up-to-date. Ask your dealer to have your lamp fitted with our mirror, every one of which is stamped "B. & L." on its face.

PRISM IS A LITTLE MAGAZINE OF LENS INFORMATION. SEND FOR COPY

¶ OUR NAME ON A PHOTOGRAPHIC LENS, FIELD GLASS, MICROSCOPE, LABORATORY APPARATUS, SCIENTIFIC OR ENGINEERING INSTRUMENT IS A MARK OF QUALITY.

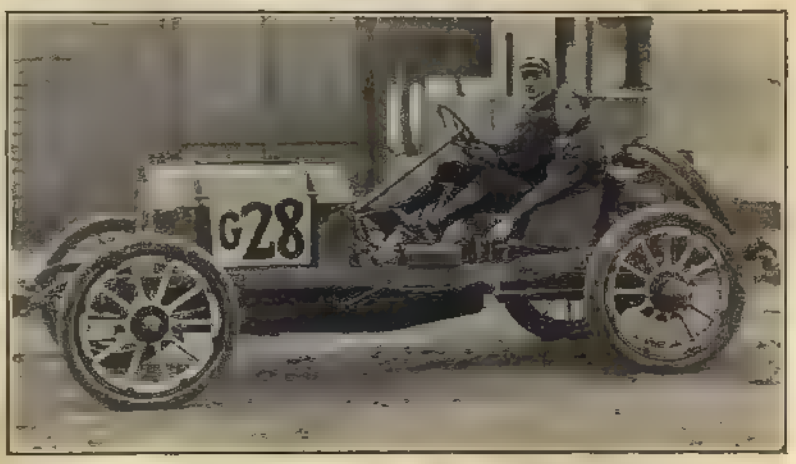
Bausch & Lomb Optical Co.

Carl Zeiss, Jena — B·L Z S — George N. Saegmuller

Offices at New York, Boston, Chicago, San Francisco, Washington, London, Frankfort

ROCHESTER, N. Y.

The "Sharp Arrow"



Proved Peerless

Among American Automobiles as a Speedy, Strong and Sure Roadster. In Winning the Garden City Sweepstakes

(for Cars selling at $2,001 to $3,000)

"SHARP ARROW" made a new sustained speed record for American-made cars, simply romping away from its own class by 50 minutes in the recent Vanderbilt Sweepstakes Races, passing the next class above, for cars selling at $3,001 to $4,000, by 15 minutes. "It proved itself second in speed only to the Isotta and Renault" of the highest class for cars selling above $4,000 It made its 188 miles in 199 minutes, inclusive of a 5 minute stop at the Grand Stand for Supplies, making a new record for American Stock Cars, an average speed of 56.4 miles an hour.

The 1908 Season's events follow:

		Miles an Hour
Savannah Stock Car Race,	**Winner's average,**	**50.7**
Briarcliff " " "	**" " "**	**49**
Lowell " " "	**" "**	**53.6**
Fairmount Park Stock Car Race,	**" "**	**48**
Motor Parkway (Vanderbilt) Sweepstake Races, Garden City Event, Winner—"Sharp Arrow's" average,		**56.4**

THE STRENGTH and RELIABILITY of the "SHARP ARROW" for fast road work were also demonstrated in this race. A moderately fast pace was struck at the start and easily maintained throughout, there being no necessity for pushing the car to its utmost speed as its lead was at no time menaced.

IN THE CONSTRUCTION of "SHARP ARROW" liberal use is made of Alloy Steels of acknowledged quality and strength, Vanadium Steel, Krupp Steel and Chrome Nickel being employed wherever weight can be eliminated and increased strength obtained. Drop forgings are abundantly used for parts that are usually made of steel castings.

"SHARP ARROW" will be marketed in four models: 2 and 3 Passenger Runabouts, 106-inch Wheel base; Double-rumble and 5 Passenger Touring Car, 115-inch Wheel-base.

"SHARP ARROW" is not an accident, but the achievement of an **idea** reproduced in each machine. Catalogues on application.

OFFICE AND FACTORY, Trenton, N. J.

WHY?

Do water-cooled cars predominate?

BECAUSE--

Since the inception of the industry, 98% of the manufacturers have proceeded along the line of least resistance. ¶ A few of us have maintained the courage of our convictions in face of tremendous odds, and by laborious effort attained their fulfillment.

We give you to-day in the "Cameron," an air-cooled motor which is **ABSOLUTELY SUPERIOR** to the water-cooled type under any conceivable condition. Water-cooled motors **do not** and **cannot** cool as successfully.

We state here unreservedly that "Cameron" Motors are more efficient and economical under any condition whatsoever than any motors built of same piston displacement.

We are taking and shall continue to take every opportunity within our reach to demonstrate this truth in competition.

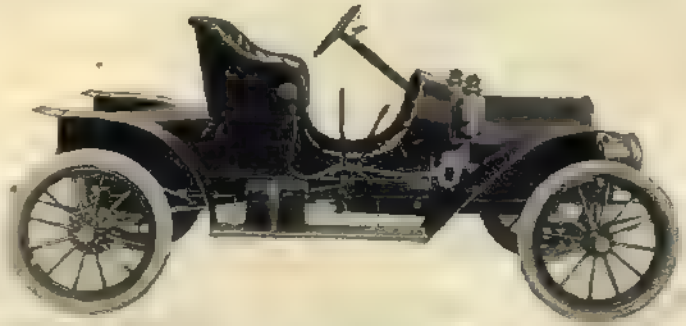
The following table of variations in time between fastest and slowest laps (23.46 miles to each lap) in Sweepstakes events over the Vanderbilt Course, October 10th, is certainly an important verification of our claims, and means that our

COOLING SYSTEM, IGNITION, CARBURATION, LUBRICATION, WEIGHT DISTRIBUTION, TIRE PROPORTIONS and CONTROL were Absolutely Perfect

	VARIATION
Cameron	.11
Rainier	1.39
Itala	2.11
Renault	2.20
Mitchell	2.58
Isotta	3.58
Sharp	4.13
Mitchell	6.08
Buick	6.25
Lancia	7.00
Simplex	11.35
Chalmers-D.	11.45
Mitchell	12.33
Buick	12.37
Allen-K.	13.00
Chadwick	14.38
Cadillac	18.14
Maxwell	18.36
Knox	23.24
Stoddard-D.	27.33

20-24 H. P. $900 Model 14

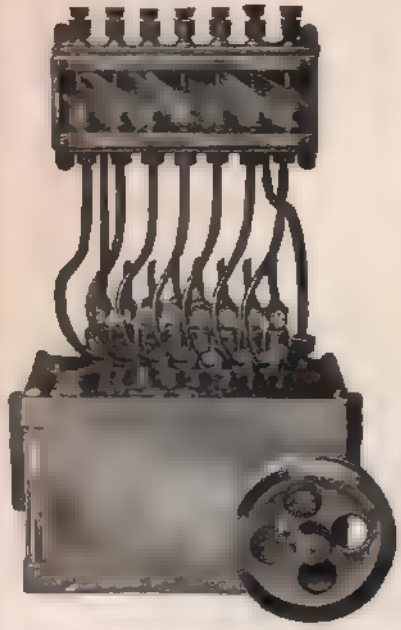
with HIGH TENSION MAGNETO



SPECIFICATIONS: Motor—Cameron air-cooled, 4 cylinder, 20-24 H. P. 3¼ x 3½ **Transmission**—Cameron patent sensitive type, 3 speeds forward, direct drive on all speeds. **Ignition**—'Remy' dual system, including high tension magneto and battery. **Wheel Base**—96 in. **Tread**—Standard 60 in. tread for southern roads when specified. **Equipment**—Two searchlights and generator, side lamps, tail light, horn, complete tool kit. **Price, with single rumble, $950.**

CAMERON CAR COMPANY, Beverly, Mass.

Manufacturers of Air-Cooled, Four and Six Cylinder Automobiles



THE "SHERWOOD"
MECHANICAL FORCE SIGHT FEED MULTIPLE OILER

The Simplest—Most Reliable and in all respects the most satisfactory and best oil pump

Set of Sight Feeds and Pump Reservoir separated so that each can be located at most convenient point, or furnished with sight feeds on reservoir so that entire device can be located at one place.

Does not depend on gravity for feed of oil from sight feeds to cylinders, but gives a positive mechanical feed of oil to the sight feeds and from the sight feeds to the parts to be lubricated.

MANUFACTURED BY

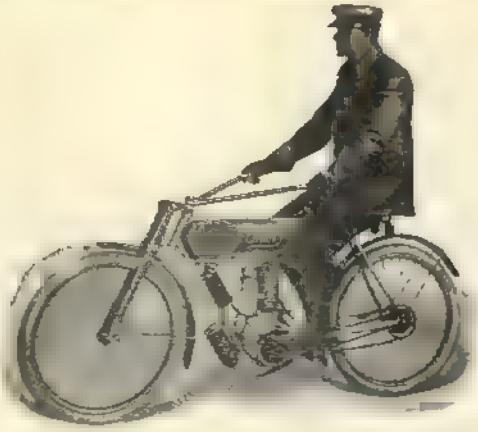
The "Sherwood" Manufacturing Co.

BUFFALO, NEW YORK

CATALOGS AND PRICES FURNISHED ON APPLICATION

THE "SHERWOOD"
FLOAT FEED CARBURETOR

Simple Construction
Reliable Feed
Perfect Mixture
Positive Shut Off
Easy to Operate
Wide Working Range
Starts Quickly and Easily
Perfect Control of Engine
Economical in Fuel Consumption
Maximum ½ Horse Power from Engine



The

Thor

Motorcycle

You will know it when you see it.

You will appreciate it when you ride it.

There are models to suit all:

SINGLE CYLINDER, DOUBLE CYLINDER and MAGNETO MODELS

Quality Predominates—Finish Excels

Dealers should remember that variety and superiority stimulate trade. If interested in Motorcycles write us today.

Aurora Automatic Machinery Co. = = Aurora, Ill.

Empire Motor Cycle Tires

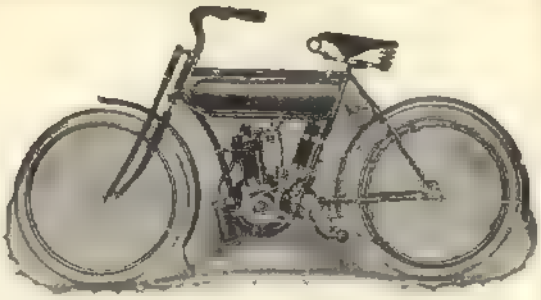
Try them; you will find they are the Best Easiest to Handle "Wear Longest"

EMPIRE AUTOMOBILE TIRE CO.

TRENTON, NEW JERSEY, U. S. A.

NEW YORK—73d St. and Broadway; 148 Chambers St.
CHICAGO—20 La Salle St.
BOSTON—292 Devonshire St.
BUFFALO—724 Main St.
JACKSONVILLE, FLA.—Savell Rubber Co.
PHILADELPHIA—Penn Auto Supply Company
PROVIDENCE—Waite Auto Supply Company
SEATTLE, WASH.—Fobes Auto Supply Company
DENVER, COL.—Denver Auto Goods Company
ATLANTA GA. Dunham Rubber Co.

1908
Yale-California
MOTOR CYCLE



"A MOTOR CYCLE IN EVERY SENSE OF THE WORD"

Yale and Snell Bicycles
Hussey Handle Bars
Consolidated service is the Best

Send for Catalogue and Circular describing the new Consolidated Hanger

The Consolidated Manufacturing Co.
1710 Fernwood Ave., TOLEDO, OHIO

No 3 Standard Motor Cycle Pedal

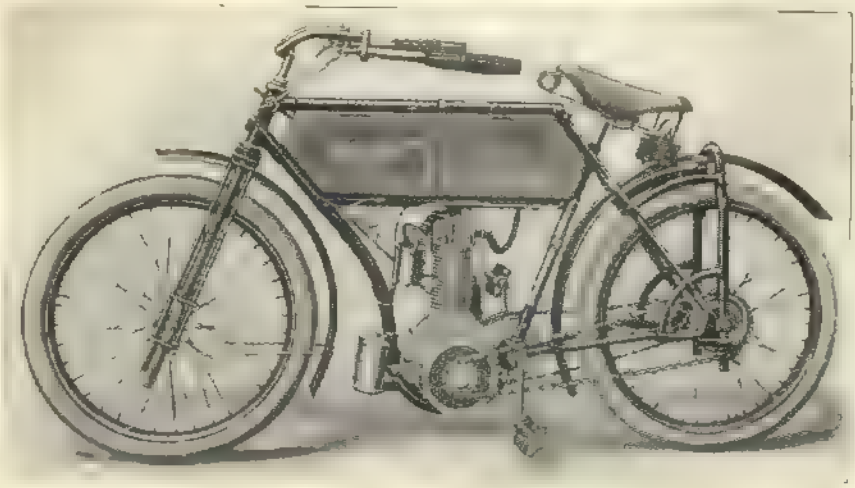
The Standard Line
of Bicycle and Motorcycle Parts

is the choice of the wise manufacturers because of their unvarying excellence. Invariably either "BRIDGEPORT," "STAR," or "STANDARD" PEDALS are found on all high-grade bicycles; while for motorcycle use nothing can surpass the No. 3 "STANDARD" PEDAL. We also manufacture SPOKES and NIPPLES in the following grades: "Diamond E," "Sunbeam," "No. 2 and No. 6," "A," "Special" and "Special A." These are boxed 100 in a box. Our "SAGER" and "STAR" TOE CLIPS are noted for their special finish and workmanship.

Write for full information regarding our line.

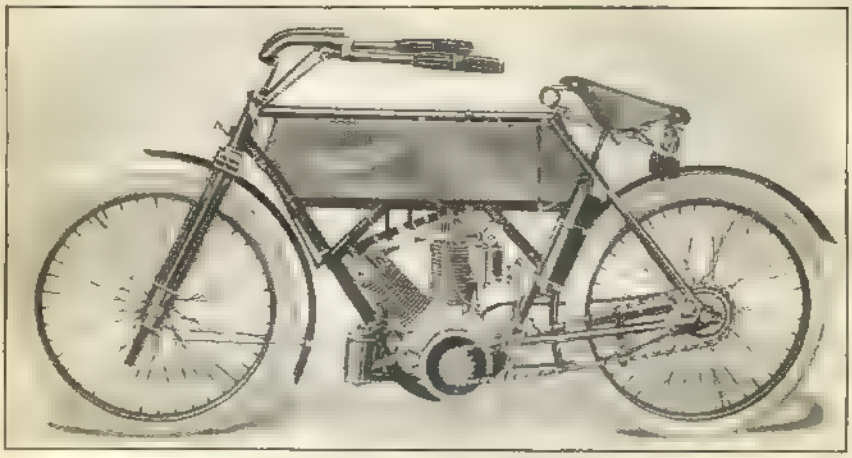
THE STANDARD COMPANY
TORRINGTON, CONN., U. S. A.

HAVE you ever stopped to consider that the TORPEDO is from one to two years ahead of other makes in their improvements and ideas, and is today the only perfect and up-to-date built machine on the market? This is true not only because we say so, but because records have proved it.



Torpedo Model G

Built for comfort. The only machine on the market that is built absolutely on springs; rides like an automobile, just what you have been looking for; does not cost you any more than any other high grade machine, and you are getting about twice as much for your money. Now is your chance to get a machine that is right.



Torpedo Model F. Twin-Cylinder

The ambition of most Motorcyclists is to possess a twin-cylinder. This model has been specially designed to cater to those who require a powerful machine at a popular price. This machine has been thoroughly tested in every respect and, there is not a weak point in it. It has been designed as light as possible for a powerful engine, in fact they are only a few pounds heavier than the 3 H. P. model. Will be furnished with or without magneto.

The Leading Features Are:

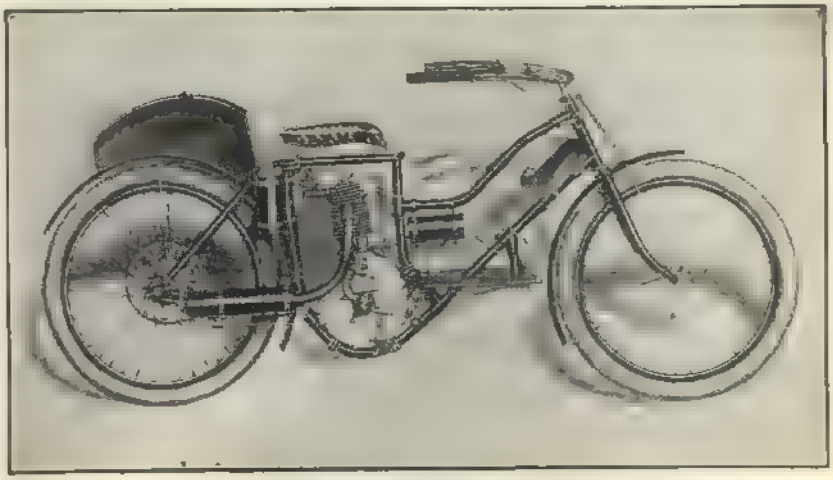
Torpedo Low Loop Frame, double Top Bar, note low saddle position.
Torpedo Patent Front Spring Fork, also Rear Spring if desired.
Torpedo Double Muffler, silent, no back pressure.
Torpedo is the simplest constructed machine on the market and it does not take a mechanic to operate it.

Will Exhibit at the New York and Chicago Shows.
Do not fail to write for our new catalog which is at your disposal.

The Hornecker Motor Mfg. Co., Geneseo, Illinois

1909

New Era Auto-Cycle



PATENT PENDING

The following new and novel features are just a few of the many important features employed in the construction of the New Era Auto-Cycle.

Two Speeds. Free Motor. Slow and High Speed and Brake are operated by the Feet. Comfortable Form Seat. Foot Board. Loud Popping of Exhaust is Entirely Eliminated. 60 Inch Wheel Base. Improved Grip Control. Motor is Started by Means of a Crank, Same as an Automobile. 3½ H.P.Single Cylinder Motor. Speed 60 miles per hour.

THE NEW ERA AUTO-CYCLE IS A TWO-WHEELED AUTOMOBILE, operated similar to an automobile, and any one who finds pleasure in riding in an automobile, will find just as much pleasure and recreation in riding a New Era Auto-Cycle.

Dealers interested should write for catalogue now.

The New Era Gas Engine Company

7 Dale Ave., DAYTON, OHIO

"TOWNSHIP" PILE DRIVERS

Usually Operated by Horse-Power, with Hammers that weigh from 500 to 1200 Pounds

In order to meet the demand for a Pile Driver for use on small bridges and other light driving, at reasonable cost, we are building them as represented in the engraving. We make them of different capacities, from 500 pound hammer up to 1,200 pounds.

The hammer is usually raised by horse-power, the smaller sizes being hoisted direct, that is without a purchase block, and the larger sizes have one end of the line fastened to a suitable post, driven into the ground, while the other end is passed through a tackle-block, which is fastened to the main hoisting line and leads to the whiffletree direct. Sometimes contractors use a winch, which is bolted to the ladder. It, of course, will do the work, but is very slow. Tackle-blocks can also be used, instead of sheaves at top and bottom, on smaller sizes, when so desired

The Pile Driver complete, in addition to the iron work below, consists of the framing as shown, fastened together with bolts so as to be readily taken apart for transportation, having turned ladder rungs, turned maple rollers, and a nipper block, but not including lines or adjustable trip. Prices include painting and delivery on car, "knocked down," Chicago.

A full set of ironwork usually consists of a hammer with steel die fitted in, nippers, top sheaves, shafts, boxes and bolts, one pair of No. 1 toggles with bolts, one pair of No. 2 toggles with bolts, channel-iron liners, with bolts and washers, together with working drawing of the woodwork when desired. Snatch blocks at bottom we think are preferable to fixed sheaves for horse-power.

PRICES OF TOWNSHIP PILE DRIVERS COMPLETE, OMITTING LINES AND BLOCKS

Size of Driver	Distance between Jaws of Hammer	Width of Jaws of Hammer	Hammer with Steel Die Fitted in	Forged Nippers	Two Top Sheaves, Shafts, Boxes and Bolts	Channel Iron Liners, including Bolts and Washers	Height of Leaders	One Pair No. 1 Toggles, with Bolts	One Pair No. 2 Toggles with Bolts	Total Net Price of Iron Work Complete	Net Prices of Woodwork Complete	Total Net Price of Pile Driver Complete Without Lines or Blocks
Pounds	Inches	Inches					Feet					
500	13	4¼	$20 63	$15 75	$ 7 12	$16.58	24	$ 6 37	$2.70	$ 69.15	$112 50	$181 65
600	13	4¼	24.38	15 75	7 12	16.58	24	6 37	2 70	72 90	112 50	185 40
700	14	4¼	27.00	15.75	7.12	18.00	26	6.38	2.70	76.95	135 00	211 95
800	14	4¼	31 38	15 75	7 12	18 00	26	6 38	2 70	80.33	135 00	215 33
1000	16	5¼	36 00	21.00	10 13	22 27	28	10 13	3 60	103.12	150 00	253 13
1200	16	5¼	42 75	21 00	10 13	22.27	28	10.13	3 60	109 88	150 00	259 88

PRICES INCLUDE WORKING DRAWINGS AND BLUE-PRINT FOR SETTING UP LINES AND BLOCKS, QUOTED UPON REQUEST

PARTS OF PILE DRIVERS

DROP PILE HAMMERS

We aim to get the best form of hammers suitable for the purpose and have given careful attention to three points, viz:

1st. To get as much of the weight in the bottom of the hammer as possible.

2nd. To have the hammer as long as the size of the leaders will permit. This gives longer bearing in the guides.

3rd. To have as little play as possible between the hammer and the leaders. This is required to obviate as much as possible the jar on the leaders at the time of striking the pile.

Instead of the old fashioned strap at the top we recess the pin in the body of the hammer, so as to take advantage of all the height of the leaders possible. All corners are rounded.

Bottoms when made concave are only slightly so—not over ⅛ of an inch. When pile caps are used, however, there should not be any concave. The old fashioned idea of having a very deep concave is now, we think, entirely out of date.

If customers have any preference for flat or concave bottoms, it would be well, in ordering, to state which is wanted.

The Dies or Pins are made in three different styles:

1st. Triangular Die of hammered steel, fitted in the hammer, and stationary.

2nd. Rolling Die; a hammered steel triangular die rotating on a turned pin, which is fitted tightly in the hammer.

The above forms are used with nippers.

3rd. A Turned Steel Pin, to which the hoisting line is attached direct. This form is used where driving is done by friction. The hole in hammer is also finished, that is, bored out, to make a close fit.

The following dimensions for the different sized hammers appear to us to be about right. While we would like to keep standard dimensions, yet, as a matter of fact, many of those we send out are made to suit existing leaders, so that there is often more or less labor required to alter the pattern, *which is included in our price.*

Where Channel-iron Liners are used, ¼ of an inch play, that is, ⅛ of an inch on each side, appears to be sufficient, but where Strap-iron Liners are used, ½ of an inch should be allowed.

Weight of Drop Hammer, Pounds	Distance Between Jaws, Inches	Width of Jaw, Channel-Iron Liners	Width of Jaw, Strap Liners
500 and 600	13	4½	4½
700 and 800	14	4¾	4½
1,000 and 1,200	16	5½	5½
1,500 to 1,800	18	6¼	6¼
2,000 to 2,500 inclusive	19	7½	7½
Over 2,500	20	8¼	8¼

Prices of Drop Pile Hammers

Weight of Hammer in Pounds	Price Per Pound	Extra for Triangular Die Fitted in Hammer	Extra for Steel Turned Pin Fitted In Bored Hole
600 and under	$ .05	$2.50	....
700 to 800 inclusive	.04¾	2.50	.....
1000 and under 1500	.04½	3.00	$4.00
1500 and under 3000	.04¼	5.00	5.00
3000 and over	.03¾	....	6.00

Rolling Triangular Dies are very seldom called for, but can be furnished at from $4.00 to $8.00, according to size of hammer.

NOTE.—Weight will vary 25 to 100 lbs. more or less, than ordered weight, depending on size of hammer.

With Block

Nippers

Without Block

The general use of friction engines for driving piles has done away, to a large extent, with the demand for Nippers. The larger sizes are seldom called for. We have added to our list a smaller size for very light hammers. Our Nippers are forged out under a steam hammer and have machine-finished hinges and steel plated points. We set the arms to suit width between the leaders, which should be sent us.

The Nipper Blocks are of oak, well bolted, the No. 1 size having a wrought iron strap through which the pin passes.

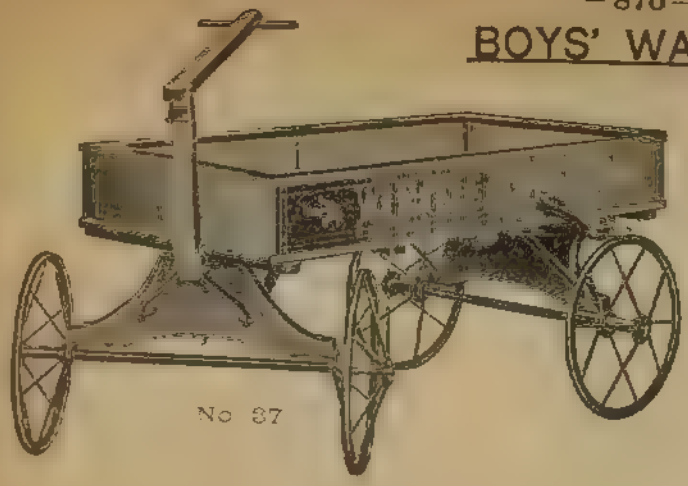
No.	Suitable for Hammers	Price of Nippers, Only	Nipper Blocks Extra
1	2500 lbs. and up	$35.25	$6.75
2	1500 to 2000 lbs.	27.00	6.00
3	1000 to 1200 lbs.	21.00	5.00
4	800 lbs. and under	15.75	4.90

Adjustable Trips

The Adjustable Trip is used for striking light blows, such as needed for a pile of small diameter, or for pile very near its destination. It is raised or lowered in the leaders by means of a small line, with suitable sheave at the top. The sides are of plate iron, the striking plates at the ends of cast iron, to give the necessary weight, while the bail is of wrought iron. We make them of three sizes, of the dimensions to suit leaders.

No.	Suitable for Hammers	Price, Each
1	2500 lbs. and over	$24.00
2	1200 to 2000 lbs.	16.50
3	1000 lbs. and under	13.25

BOYS' WAGONS.



No. 37

Per Dozen

No. 37—WABASH COASTER WAGON; Hardwood Gear; Well Braced from the Box Bottom Forward and Back; Cottonwood Box, Strengthened by means of Five Hardwood Strips Across the Bottom, and Two Strap Bolts Riveted to the Sides, which Pass Through the Bottom and Middle Cross Piece, with Nuts on the Bottom Ends; Axles ½ inch Round Steel; Wheels with Iron Hubs, Light Tee Steel Rims and Flat Wire Spokes; Jointed Hardwood Handle; the Box can be Easily Removed by Taking Off the Two Nuts on the Center Strap Bolts; Fitted with Wood Hand Brake; the Wheels, Axles and Gear are Finished in Bright Red; Body is Natural Wood, Varnished and Trimmed with Red; Size of Box 16x34x5 inches; Diameter of Wheels 11 inches; Weight per dozen about 350 lbs. $48.00

Per Dozen

No. 32—WABASH FARM WAGON; the Box is made of Selected Cottonwood; the Gear and Tongue of Well Seasoned Hardwood; Axles ½ inch Round Steel; Wheels with Steel Tires, Flat Wire Spokes and Tee Rim; Built upon the Regular Farm Wagon Style having the End Gate, the Dash Board, and the Side Boards, any of which can be removed; the Whole Box can be taken Off by Removing the Nuts from the Center Strap Bolts, the Wheels, Axles and Gear are Finished in Bright Red; the Body in Green; Size of Box 34x16x5½ inches; Front Wheels 11 inches, Rear Wheels 15 inches in Diameter, Weight per dozen about 350 lbs. $54.00

One-sixth Dozen in a Crate

No. 32.

Per Dozen

SEATS For No. 32 Wabash Farm Wagon: Hardwood, Painted Green; Weight per dozen about 30 lbs. $9.00

SHAFTS—For No. 32 Wabash Farm Wagon: Hardwood Painted Red; Weight per dozen about 70 lbs. . 9.00

One-twelfth Dozen in a Crate

IRON WAGON EXTRAS

Number of Wagon		NA04	NA03	NA02	NA0	NA1	NA2	NA3	NA4	NA5
Front Wheel	Each	$0.21	$0.24	$0.27	$0.30	$0.33	$0.39	$0.42	[illegible]	$0.60
Rear Wheel	Each	.27	.30	.33	.36	.42	.45	.48	.60	.60
Front or Rear Axle with Nuts	Each	.15	.18	.18	.21	.21	.24	.24	.45	.45
Front Axle, Bolster and Three Prong Piece,	Each	.33	.36	.42	.60	.60	.75	.75	1.15	1.15
Rear Axle complete with Braces	Each	.24	.24	.27	.36	.36	.45	.45	[illegible]	.66
Three Prong Piece	Each	.09	.09	.12	.12	.15	.18	.21	.33	.36
Bolster	Each	.12	.15	.15	.18	.21	.24	.24	.33	.33
Rear Brace.	Each	.09	.12	.12	.30	.30	.36	.36	.45	.45
Body	Each	.60	.66	.78	.90	1.02	1.14	1.26	1.65	1.65
Tongue Clips	Per Pair	.15	.15	.15	.30	.30	.30	.30	.30	.30
Bolts	Per Dozen	.30	.30	.30	.30	.30	.30	.30	.30	.30
Nuts	Per Dozen	.30	.30	.30	.30	.30	.30	.30	.30	.30
Tongue without Attachments.	Each	.09	.09	.09	.15	.15	.15	.15	.15	.15
Tongue with Irons and Bolts	Each	.18	.18	.18	.24	.24	.24	.24	.30	.30

Packed Loose.

TRADE MARKS: "SIMMONS' SPECIAL," "LACLEDE" AND "AMERICAN EXPRESS," REGISTERED

BOYS' WAGONS.

Our Own Brands of Boys' Wagons are Always in the Lead for Strength and Beauty of Finish. Will Give Satisfaction.

"SIMMONS' SPECIAL*."

HEAVY ALL STEEL Gearing; Steel Tongue Attachments; Patent All Steel Fifth Wheel Attachment, so arranged that by giving the Front Axle a [illegible] the Front Axle will separate from the Tripod; Extra Heavy Sheet Steel Body, with Corrugation close to Upper and Lower Edges; Finished in Bright Vermilion on Outside and Light Green Inside; Gearing is Finished in Green Enamel, Wheels made Extra Heavy Throughout and are Heavily Tinned. Center Brace on Rear Axle; Extra Large Head Bolts used Throughout. Bottom of Body made of Selected White Pine. Plain Maple Tongue.

Nos.	S/0	S/1	S/2	S/3
Size of Body, inches	12x24	13x26	14x28	15x30
Diameter of Wheels, inches	10 and 14	10 and 14	12 and 16	14 and 18
Number of Spokes in Wheels	12	16	16	16
Weight per dozen about, lbs.	185	230	270	320
Per dozen	$36.00	42.00	48.00	54.00

"LACLEDE*;" ALL STEEL.

CORRUGATED STEEL Gearing and Braces; Steel Tongue Attachments; Sheet Steel Body, with Corrugation about two inches from Top and Bottom; Bright Red Bicycle Enamel Finish Outside and Green Inside; All Gearing is Black Enamel Finish; Wheels have Heavy Spokes and are Beautifully Tinned; Name is put on with Gilt Transfer; Selected Spruce Bottoms; Plain Maple Tongue. This is by far the Best Finished Wagon ever put on the Market.

Nos.	L04	L03	L02	L0	L1	L2	L3	L4
Size of Body, inches	9x18	10x20	11x22	12x24	13x26	14x28	15x30	16x32
Diameter of Wheels, inches	6 and 8	8 and 10	8 and 10	8 and 12	9 and 13	11 and 14	12 and 15	13 and 16
Weight per dozen about, lbs.	80	95	105	140	175	190	205	250
Per dozen	$18.00	21.00	24.00	27.00	30.00	36.00	42.00	48.00

NEW "AMERICAN EXPRESS*:" ALL STEEL.

STEEL GEARING; STEEL TONGUE Attachments; Patent Steel Fifth Wheel Attachments; Sheet Steel Body, with Corrugation about two inches from Top; Painted a Bright Red Outside and Blue Inside; Steel Gearing is Black Japanned; Heavily Tinned Wheels; Plain Cypress Bottoms, Plain Maple Tongue.

Nos.	NA04	NA03	NA02	NA0	NA1	NA2	NA3	NA4	NA5
Size of Body, inches	9x18	10x20	11x22	12x24	13x26	14x28	15x30	16x32	18x36
Diameter of Wheels, inches	6 and 9	7 and 10	8 and 11	8 and 12	10 and 13	11 and 14	12 and 15	13 and 16	14 and 18
Weight per dozen about, lbs.	100	112	132	184	204	235	266	[illegible]	380
Per dozen	$15.00	18.00	21.00	24.00	27.00	33.00	39.00	48.00	60.00

EXTRAS.

	Per Dozen
Extra Seats, for Nos. NA0, NA1, NA2 and NA3 (In ordering specify number of Wagon wanted for)	$6.00

Extra Seats can be furnished for above Wagons only.

	Per Dozen Pairs
Extra Shafts	$12.00

One-half or One-quarter Dozen in a Crate.

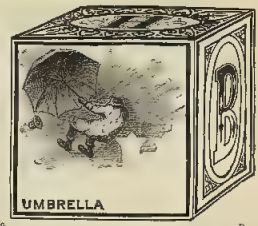
(For other Extras see Page 870.)

ALPHABET AND PICTURE BLOCKS—Continued

No. 511

No. 511 Pretty Picture Series of Alphabet Blocks. This set contains 12 blocks 3x1x¾, the series consists of Animal Antics, A B C Blocks, Pretty Picture A B C Blocks, Little Folks Playtime A B C blocks — Per doz. $4 00

No. 468 Little Menagerie Cubes, set contains 12 cubes, in full colors each 2 inches square, the covers are in full colors and gold, nicely varnished, size 6½x8½ — Per doz. $5 50



No. 24 Illustrated cubes of leaves, natural wood, or boxed cubes, printed sides, 4 illustrations of the alphabet specially designed, printed in two colors, decorative letters — Per doz. $8 00

No. 653A

No. 653A Starry Flag Blocks, contains 9 blocks, each block is 2½x3¾x¾, of solid wood, size 8x12½ — Per doz. $4 00

No. 189

No. 189 Golden Sunbeam Cubes, this set contains 12 colored cubes, each 2 inches square, the cubes are in full colors and gold and varnished, size 6½x8½ — Per doz. $5 50

520 Tree Picture Cubes, 4 styles, size 8x8, each set contains 9 cubes 2½ inches square — 5 50

570 Wild Animals Cubes, this set contains 24 cubes 2½ inches square, with pictures of wild animals, the box frame is of wood, size 8½x11 — 11 00

573 Mother Goose Cubes, size 8½x11, 12 cubes, each 2½ inches square, full colors, gold and varnished — 11 00

No. 6351 Goody Two Shoes Blocks, size 10½x17 inches, 16 blocks, printed in full colors, each block 2½x4 inches — Per doz. $8 00

669 Christmas Blocks, contains 9 blocks 2½x2½x¾, all the 6 sides are full illustrated, 3 stories, and floor pictures, a railroad train, and numerous animals and birds, size 8x18 — 8 00

657 Hippy Tippy A B C Cubes, size 8x10½, 12 cubes each 2½ inches square, full colors, gold and varnished — 8 00

675½ Polly's Christmas Blocks — 8 00

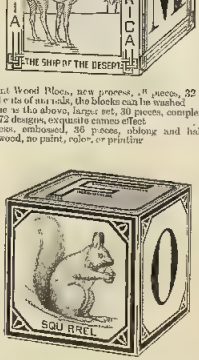
83 Blocks, 30 cubes natural wood painted and printed sides, in colors — 8 00

No. 6254

No. 6251

No. 6254 Nursery A B C Blocks, this set contains 9 hollow blocks, each 2½x4x¾, the cards are bound in red paper all in full colors and gold and varnished, size 8x12¾ — Per doz. $4 00

6251 Four Footed Friends Blocks, this set contains 9 hollow blocks, each 2½x4x¾, all in full colors and gold and varnished, size 8x12¾ — 4 00



No. 22

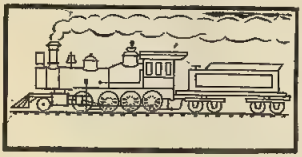
No. 22 Aunt Wood Blocks, new process, 48 pieces, 32 specially designed cuts of animals, the blocks can be washed — Per doz. $4 00

66 Same as the above, large set, 30 pieces, complete alphabet and 72 designs, exquisite cameo effect — 8 00

11 Blocks, embossed, 36 pieces, oblong and half cubes natural wood, no paint, color, or printing — 7 00

No. 682

No. 682 Mammoth Cubes, this set contains 48 hollow cubes, each 2½ inches square, the whole makes 6 complete pictures, large key pictures are enclosed, the labels are in full colors and gold and varnished put up in a stout wooden framed box, size 16x21 — Per doz. $42 00



No. 3

No. 3 12 Oblong Alphabet Blocks, embossed in outlines and decorated, combination picture and alphabet blocks — Per doz. $4 00

10 24 Cameo Alphabet Blocks, embossed in high relief on scented basswood, no painted or printed effects, this block is absolutely safe for parlor nursery young children — 4 00

No. 30

No. 30 24 cubes, embossed cubes sides painted, profusely illustrated, 96 letters and numerals — Per doz. $7 50

82 20 cubes, 1½ inches square, embossed with new outline letters, wood frame boxes — 7 00

60 Blocks, 12 cubes, natural wood cubes and numerals — 5 00

No. 16 [illegible] pieces printed in colors with ornamental letters and [illegible] boxes, size [illegible], 20 illustrations, several impressions of each letter and figure, packed in wood frame boxes — Per doz. $10 00

62 Blocks, 30 cubes natural wood cubes and painted sides — 10 00

9 30 pieces, varnished and waterproof, in wood frame boxes, with fine label in 5 colors glossed, 40 illustrations of animals, embossed silver ends, ornamental letters, printed in colors — 18 00

ALPHABET AND PICTURE BLOCKS

No 471

No. Per doz
471 Doll, Dimple A B C picture blocks, 12 blocks, each block, 1⅝x.⅝x⅜, 4 kinds assorted . . . $0 80
481 Kris Kringle A B C blocks size 5⅛x5⅛ inches, 16 blocks, blue, gold and black alphabet 80

No. 501

No. Per doz
501 Our Baby's A B C Blocks this set contains 16 blocks, size 2x2, size of box 8¼x8¼ $2 50
503 Little Scholar A B C blocks, this set contains 16 blocks, two blocks which are 2x2x⅞, contain a puzzle picture, also red gold, and black alphabet, the cover is in full colors and gold and varnished, size 8½x8¼ 2 50
502 Pussy Cat A B C Blocks, size 8¼x8¼, 16 pieces, full colors, gold and varnished 2 50

No 6103

No. Per doz
46 16 pieces, cubes, natural wood embossed ends, complete alphabet $1 60
6103 Yankee Doodle A B C Blocks, this set contains 8 blocks, each block being 3x1⅝x⅞, size 6½x7½ 1 80

No 6

No. Per doz
9 16 pieces, embossed hardwood in glazed paper boxes, complete alphabet and numerals $1 50
40 12 pieces, cubes, natural wood, embossed ends, complete alphabet, a popular set, 1 dozen in package 1 50 packing this season

No 6871½

No. Per set
6102 St. Nicholas A B C and Picture Blocks, size 6½x7½, 8 blocks, full colors and gold varnished $1 60
6101 Little Soldiers A B C Blocks, size 6½x7½, 8 blocks 1 60

No 482

No. Per set
49 9 cubes, natural wood, printed, retailing at 5 cents $0 80
482 Little Scholar's Blocks, this set contains 16 blocks, having differently colored alphabet letters on a scarlet background, the cover is in full lithograph colors, size 5 inches square 80

No. Per doz.
76 Same as the above, 16 pieces. . $1 80
77 9 pieces, half cubes 1½-inch, rolled in attractive and contrasting colors, with alphabet, complete . 80
15 Blocks, embossed cubes, 9 pieces . . 3 00

No. 1

No. Per doz
1 24 pieces, embossed alphabet and illustrations in decorated outline, half cubes $4 00
507 Bird and Animal Blocks this set contains 12 blocks in full colors, each block, size 2½x5, the series consists of A B C of favorite animals, A B C of pretty birds, A B C of railroad blocks, size 1½x5.01½ 4 00
7 20 pieces, embossed ends, cubes natural wood, new packing this season 4 00

No 6256

No. Per doz
6256 Red Riding Hood A B C Blocks, size 8x3½, 9 pieces, each 2x2x4 $4 00
6252 Little Fireman's A B C Blocks, size 8x12½, 9 pieces, each 2x2x4 4 00
6253 Playful Children Picture Blocks size 8½x12½, 9 pieces, each 2½x3 4 00

Nos 70A and 41

No. Per doz.
70A 12 pieces, packed in paper boxes, embossed ends and printed in colors, 72 letters and illustrations $2 00
41 Painted cubes 12 pieces 1 60

No 2

No. Per doz.
2 10 pieces cubes, natural wood, embossed ends, paper boxes, new this season $4 00
804 This set contains 20 1¾-inch plain unvarnished cube blocks, printed on four sides, with alphabet, numerals and animals, in fancy box, 7½x1½ . . 4 00
80A 12 pieces cubes, decorated in two colors, paper boxes, painted and varnished. 4 00

Nos. 50 and 58

Per doz. Per doz.
50 16 cubes animals in cages on ends of each block letters and numerals on the sides $4 00
58 24 cubes animals in cages and letters on ends of each block, letters and numerals on the sides and illustrations 8 00
485 Little Grandmother A B C Cubes, this set contains 6 cubes, each 3½ inches square, the cubes are in red with large black and gold letters, the labels are in full colors and varnished, size 6x8½ . . 4 00

TOYS—Continued

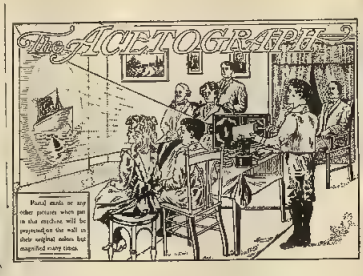
ELECTRIC MAGIC LANTERNS

No. Per doz.
86931 Equipped with a 32-candlepower electric lamp, 6 feet of cord with plug, good lens, 12 slides, length 10½ inches.... .... $78 00

No. Per doz.
86932 50-candlepower lamp, double convex objective lens, slide carrier, 60 feet of cord with plug, 12 slides, length 14 inches . . . $138 00

No. Per doz.
86933 Fitted with high grade achromatic objective lens, pinion focus, hardwood slide carrier, 50-candlepower electric lamp, length 18 inches . . $276 00

No. Per doz.
86682 Equipped with acetylene generator and 1 three-foot film, lenses are ground and polished, showing a moving picture on a screen 5x6 feet. $120 00



No. Per doz.
86680 Acetograph post-card machine, equipped for illuminating gas, projects on the screen in natural colors photographs, etc., greatly magnified. $66 00
86681 Same as No 86680, with patent generator for acetylene gas..... ... . 90 00

ELECTRIC POST CARD EJECTOR

No. Per doz.
86934 Projects on the screen in natural colors post cards, photographs, etc greatly magnified, has 24-candle-power lamp and connections, size 9x12x6 . . . .. $90 00

KALEIDOSCOPES

No. Per doz.
86111 10-cylinder kaleidoscope length 5½ inches, diameter 1⅛ inches, 1 dozen in box, not broken $0 80
86112 Same as No 86111 but larger, length 7¾ inches, diameter 1⅝ inches, 1 dozen in box not broken 1 50
86113 Same as No 86111, but still larger, length 11¼ inches, diameter 2½ inches, ½ dozen in box not broken 4 00

STEAM ENGINES

No 86500

No 86501

No. Per doz.
86500 Brass boiler, sheet-iron fire box, metal base, height 9 inches, diameter of base 3¾ inches . $4 50
86501 Same as No 86500 height 11 inches, diameter of base 4½ inches..... . ... 8 50

Nos. 86254 and 86255

No. 86502

No. Per doz.
86254 Upright steam engine, blue boiler 9 inches high, oscillating cylinder, each in box with alcohol-lamp, funnel, and pan $12 00
86255 Upright steam engine, brass boiler, oscillating cylinder whistle, safety valve, 11 inches high, each in box 16 00
86502 Brass boiler with whistle and glass water gauge, height 12½ inches. 18 00

No 86505

No 86503

No. Per doz.
86506 Highly polished brass boiler, gun-metal finish, with brass water gauge, whistle, large balance wheel of polished nickel, height 11 inches, the lamp and draft arrangement of this engine are especially adapted for the use of petroleum oil as a fuel $27 00
86503 Highly polished brass boiler, sheet steel fire box, hardwood base, all parts interchangeable, length of base 10¼ inches, height 9¾ inches. 19 00

No. Per doz.
86512 Brass boiler with whistle safety valve, cylinder, and shafting, with balance wheel and 1 pulley wheel, length 5½ inches, height 6 inches. . . $12 00

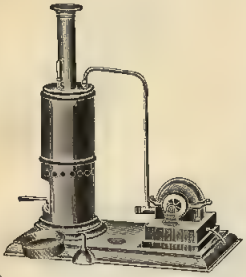
No. Per doz.
86513 Brass boiler with whistle, safety valve, cylinder, and shafting, with balance wheel and 1 pulley wheel, length 7 inches, height 7½ inches..... .... $18 00

No. Per doz.
86514 Brass boiler with whistle, safety valve, cylinder, shafting, and governor, with balance wheel and 1 pulley wheel, length 8 inches, height 9 inches . . $25 20

TOYS—Continued

STEAM ENGINES—Continued

Each in box



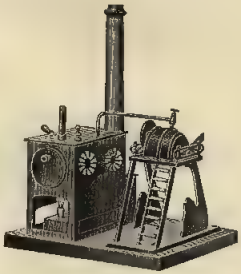
No. 86258 Upright turbine steam engine, brass finish, mounted on a platform with fly-wheel on separate base, height 10 inches . Per doz. $24 00

No. 86504

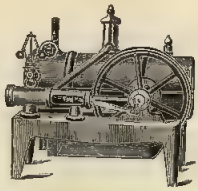
No. 86506

No. 86504 Highly polished brass boiler mounted on 5¾x8¼ enameled metal base, with two cylinders, steam chest, water gauge, whistle and hose and nozzle, all parts interchangeable, height 8½ inches . . . . . Per doz. $25 20

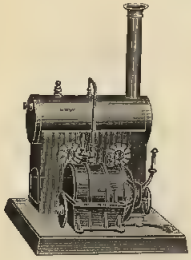
86506 Polished brass boiler, with watered glass engine, runs backwards or forwards at equal speed . 33 60



No. 86259 Turbine steam engine, horizontal steel boiler, separate smoke stack, has fly-whee, mounted on a separate pedestal, all mounted on a platform 7½x6 inches, smoke stack 10 inches high . Per doz. $38 00



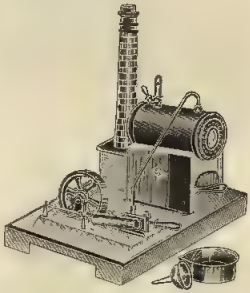
No. 86507 Highly polished brass boiler trimmed with steam dome, whistle, safety valve slide valve, reversing, steam chest, cylinder and governor, case malleable iron frame all parts interchangeable, size 6¾x8¾, height 5 inches . Per doz. $50 40



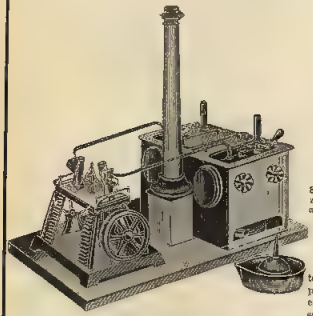
No. 86260 Turbine steam engine, horizontal steel boiler, fly-wheel on separate base, all mounted on platform 7½x6 inches, smoke stack 9 inches high . Per doz. $48 00

No. 86508

No. 86508 Brass boiler, finished in gun metal, walking beam and balance wheel finished in nickel, mounted on heavy metal frame, size 10½x6, height 8½ inches . Per doz. $72 00



No. 86256 Horizontal steamengine, steam boiler, mounted on platform, cylinder and fly-wheel mounted on separate base, is reversible, has large separate smoke stack, platform 7½x7½ inches, height 10 inches . Per doz. $54 00



No. 86257 Steam engine, two steam boilers and two oscillating cylinders mounted on a fancy base, has tall separate smoke stack, platform 11x7½ inches, smoke stack 13 inches high . . . Per doz. $66 00

No. 86509

No. 86509 Large boiler nickel-plated, cast iron base, horizontal engine with two drive wheels, whistle, water gauge and governor, size 7x10 . Per doz. $84 00

Many of the articles in this list are especially intended for holiday sales, and of such goods it is impossible to keep a complete assortment throughout the entire season. In ordering near the close of the holiday season, or after it is over, it would be well for customers to give us permission to send the nearest we have to the article ordered, should it not be in stock. In most instances the difference in appearance and price would be slight.

No. 86510

No. 86511

No. 86510 Brass boiler encased in blue steel jacket, iron frame, polished, safety valve, whistle, water gauge, very strong cast iron cylinder and steam chest, with large heavy fly wheel, size 5x8 . Per doz. $108 00

86511 Brass boiler, enclosed in glazed steel jacket, all steam and water pipes are of brass, height 15¼ inches, length 8 inches . . . 144 00

GAMES—Continued

No. Per doz.
990 Vacuum tipped arrow pistols perfectly harmless, accurate, sure, length of pistol 8 inches, length of arrow 4 inches, pistol arrow and target card in box $8 00

No. Per doz.
758 American marksman $3 00
188 Rattle game pistols, assorted 8 00
189 Disappearing pistol, new invention, shoots paper disks with the accuracy of bullets 8 00

LOTTO

No. Per doz.
417A Lotto, in a box, this set of numbers on square block with cards size 6x8¼, 1 dozen in package $1 40
417 This box contains 24 cards, a set of round men and a box of glass markers, it is put up in a wood box covered with paper so as to represent a leather trunk, size of box 8x12½, 2 dozen in package 4 00
418 Contains 24 cards, set of numbers, and a box of glass markers, for an extra cost the box is wood covered to represent a leather trunk, the box of this lotto is 4¾x8, ½ dozen in package 8 00
419 Contains 24 cards, a set of counters and a greater quantity of glass markers, the covering of the box represents a leather trunk, the size of this box is 6x10½, each in package 12 00
420 American Lotto, the box is covered with lithographed cloth, with the title printed in gilt, the contents are the same as No. 417, above, measures 5x8, ½ dozen in package 4 00
423 Mediatic Lotto 12 00

No. Per doz.
421 Library Lotto, this set contains 24 cards, set of counters and a full box of glass markers, the covers represent book sections, stripped together, all in full colors and gold and varnished, size 5x8, ¼ dozen in package $3 00
422 Parlor Morocco Lotto, this complete set contains special colored cards, the box is covered in high grade soft padded morocco leather, decorated in gold, size of box 12x18 in box 24 00

No. 149

No. Per doz.
110 Puzzle packets, 6 kinds assorted, contains, In Japan, Council Animals, Soldiers, Stars and Stripes, Three Bears, Wild Animals, three pictures in each box, ½ dozen in package $4 00
112 Puzzle in tin box, 6 kinds assorted, contains Tom Tom Chubbed Jolly Coachman, Three Little Kittens, Cockerelle, Little Boy, three pictures, each box, ½ dozen in package 4 00
542 Crossword spelling game, 6 kinds, each box contains a different spelling game with a large picture of an animal upon the lid, in full colors, and gold and varnished, size 9x11½, ½ dozen in package 4 00
179 Favorite puzzle 8 00
181 Our Pets puzzle 8 00
178 Monkey Cow picture puzzle, three puzzles of cattle, set in tin, tray, colors 12 00
184 Monkey Soldiers picture puzzle, three pictures of mounted soldiers of various shapes, in tin box 12 00

TABLE AND FLOOR CROQUET

No. Per doz.
723 4 balls and 4 mallets, stakes, arches, wires and sand, complete, each in wood box $4 00
724 6 balls and mallets, 10 arches, 2 stakes, 1 set wire pegs, complete in box, each in box 8 00
725 Parlor Floor Croquet, consisting of 4 balls, 4 mallets, 10 arches, pointed so as to pierce the carpet and 2 stakes, all put up in a neat whitewood box, set all varnished balls and mallets extra striped, each in box 16 00
726 Table Croquet for eight players varnished 16 00

No. Per doz.
204 Hazard, a game wheel of fortune game $16 00

No. 834

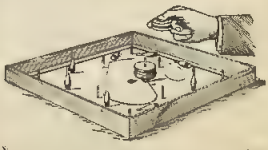
No. 830

No. Per doz.
830 Sliced birds puzzles, from 10 to 14 different pictures in box, size of box 10x14, in tin box $4 00
834 Sliced animal puzzles, from 10 to 14 different pictures in box, size 10x10 . . . . . 4 00
835 Sliced objects puzzles, from 10 to 14 different pictures in box, size 10x10 . . . . . 4 00

No. 1014

No. Per doz.
1014 Birds in slices, to be put together in pieces and colors, size 11x11 . . . . . $4 00
1015 Animals in slices, to be put together in pieces and colors, size 11x11 . . . . . 4 00

No. Per doz.
211 Shadow theatre, entirely new, handsome folding proscenium with candle, etc., with book of plays and figures to be cut out, size of box 21x31 . . . . . $16 00
660 Our Theatre, Theater three pieces, Red Riding Hood, Three Bears, Three Pigs 16 00



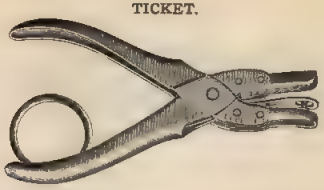
No. Per doz.
234 Jack Straw, Jacks, made of wood, on 11 inch round spring top, with ten pins $8 00

FOLDING DOLL HOUSE

No. Per doz.
7605 Folding doll house, two stories, strongly made and well printed, size of box 12½x21 inches $16 00

PUNCHES.

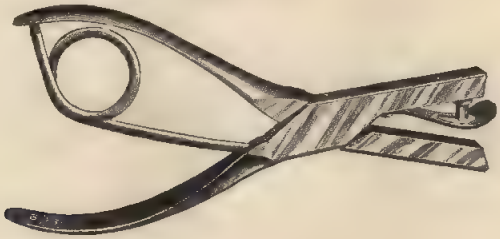
TICKET.



Per dozen

Standard, Nickel Plated Steel, Forged Dies, Assorted $4.20

Half dozen in a box

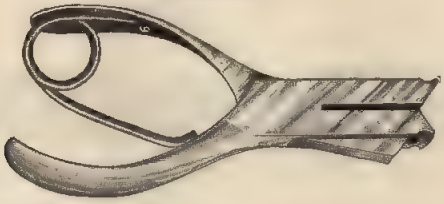


Per dozen

No. 10. Polished Steel, Assorted Dies $9.00

Half dozen in a box.

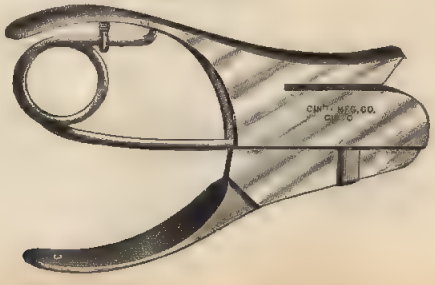
CONDUCTOR.



Per dozen

No. 9. Nickel Plated Steel, Assorted Dies $13.00

Half dozen in a box



Per dozen

No. 8. Polished and Nickel Plated, Assorted Dies $30.00

One in a box.

TROLLEY TRACK TIPPING BUCKETS

This Bucket is used with overhead trolley track for carrying coal and ashes through narrow passages, to and from boiler rooms, gas retort houses, and store rooms generally.

It is also useful for handling stone and other material on sewer and general construction work. The body of bucket is made low for easy filling and long and narrow to facilitate working in trenches. It is neatly and strongly designed, with double bottom.

Size No. of Bucket	Coal Capacity in Lbs.	Capacity in Cubic Feet	Length of Bucket in Inches	Width Over All in Inches	Depth of Bucket in Inches	Price
123	300	6	44	26	19	$29.00
124	400	8	36	27	22	32.00
125	500	10	41	30	24	36.00
126	600	12	42	27	26	40.00
127	700	14	48	33	27	50.00
128	800	18	48	37	29	60.00
129	1150	21	48	43	30	70.00
130	1350	27	40	46	31	84.00
131	1500	27	55	45	29	84.00
132	1800	35	58	54	35	94.00
133	2100	42	60	58	35	103.00

ROUND BUCKETS

The accompanying illustrations show our Round Bucket, which is used for handling all sorts of material. It is built of steel and iron and the bottom is made of stock double the thickness of the sides, thereby equalizing the wear. To secure stiffness and strength the bottom and sides are joined by an angle iron ring.

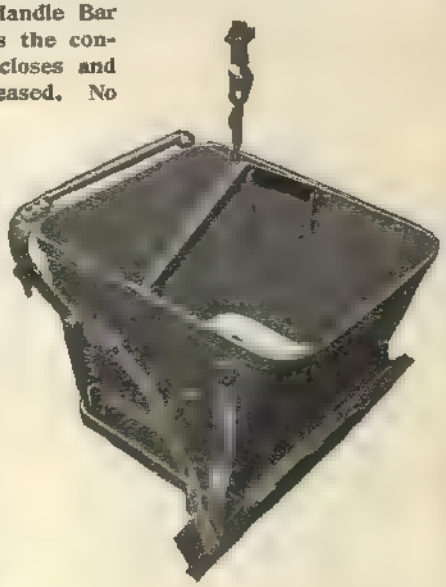
Regular sizes are made as tabulated below; for Buckets made of special dimensions, etc., estimates will be furnished.

Size No. of Bucket	Coal Capacity in Pounds	Capacity in Cubic Feet	Width Over All in Inches	Height from Bottom of Bucket to Top of Handle	Depth of Bucket in Inches	Weight of Bucket in Pounds	Price
13[illegible]	300	[illegible]	3[illegible]	37	21	150	$25.00
13[illegible]	400	[illegible]	3[illegible]	41	22	175	31.25
13[illegible]	5[illegible]	[illegible]	3[illegible]	44	[illegible]	220	37.[illegible]
7	7[illegible]	[illegible]	4[illegible]	44	2[illegible]	28[illegible]	43.75
138	[illegible]	[illegible]	4[illegible]	41	2[illegible]	3[illegible]	5[illegible]
139	1[illegible]	21	18	46	3[illegible]	4[illegible]	[illegible]
140	1[illegible]	[illegible]	[illegible]	50	3[illegible]	[illegible]	68.75
141	[illegible]	4[illegible]	[illegible]	71	40	7[illegible]	93.[illegible]

"EXCELSIOR" PATENT BOTTOM DUMPING BUCKET

FOR HANDLING CONCRETE AND OTHER MATERIALS

A slight upward pull on the Handle Bar dumps the Bottom and discharges the contents. A downward pull quickly closes and locks it in place until again released. No springs.



DUMPS AND CLOSES QUICKLY AND EASILY

USED BY SOME OF THE LARGEST CONTRACTORS IN THE COUNTRY

The "Excelsior" Buckets dump material quickly and pile it up in circular heaps without spreading.

They are made of only the best materials and constructed with the most modern devices for opening and closing their bottom doors, securing to the user a saving of time and labor.

Its users declare the "Excelsior" to be the best built, most perfect working and cleanest dumping bucket made.

No.	Cap. Cu. Ft.	Weight, Lbs.	Price, Each	Length of Top Inches	Length of Bottom, Inches	Depth, in Inches	Height to Top of Basket	Height to Top of Bail	Width Inside at Top and Bottom	Width Over All
500	3	175	$ 65 00	20	12	18	20	23	19	24
501	7	360	80 00	29	18	25	27	32	27	33
502	10	450	95 00	34	22	27	3[illegible]	3[illegible]	29	35
503	12	500	105 00	35	23	28	31	36	30	36
504	14	575	120 00	40	27	28	31	40	30	37
505	18	670	130 00	43	29	30	33	42	32	38
506	21	745	140.00	46	31	31	34	44	36	43
507	27	850	150 00	48	33	33	36	47	36	43
508	34	1025	183 00	53	37	36	39	50	41	48
509	41	1150	200 00	58	40	39	42	53	45	53
510	54	1650	265 00	60	43	41	44	59	51	62
511	63	1700	280 00	61	43	42	45	60	52	63
512	67	1775	290 00	61	43	42	45	60	54	65
513	75	2070	300 00	61	43	42	45	65	60	71
514	85	2300	325 00	67	49	44	48	72	60	71

COMPASSES.

TUDOR'S EXPLORER'S COMPASSES.

With Heavy Brass Hinge Covers, Each, $6 00

Explorers.

DIRECTIONS FOR USING

Find the North with the Needle. When the Needle is steadied down and the "N" is directly under the Needle, turn the Arrow in the direction in which you wish to direct your course, getting it as exact as possible. Now when out of camp and you wish at any time to know the direction in which you should go or the direction in which you should return, take your compass out of your pocket, release the catch, find the North with the Needle, placing the "N" directly under the Needle and your Arrow will then be pointing directly in the course that you should take; the Tail of the Arrow pointing directly in the course that you should take to return to the point from whence you came.

No. 77.

COMPASSES.

Brass Case and Cover, Metal Dial, Slide Stop, Brass Cap.

No. **77**, 30 M. M., 1¼ inch Face, - Each, $0 80
" **77**, 40 " 1½ " " - - " 1 00
No. **77**, 50 M. M., 2 inch Face, - Each, $1 20
" **77**, 60 " 2½ " " - - " 1 35

No. 88

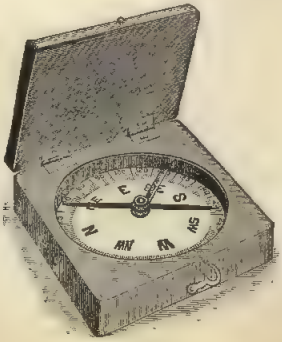
No. 99. Brass Case, without Cover, Card Dial, Full Circle Division, without Stop.

No. **99**, 40 M. M., 1½ inch Face, - Each, $0 50
" **99**, 45 " 1¾ " " " 60

No. 88. Brass Case and Cover, Card Dial, Brass Cap, without Stop, Full Circle Division.

No. **88**, 1½ inch Face, - - Each, $0 45
" **88**, 1¾ " " - " 50
" **88**, 2 " " - - " 60

No 99.



No. 202.

No. 202. Rosewood Case (square), Metal Dial, Agate Cap, Full Division, Automatic Stop.

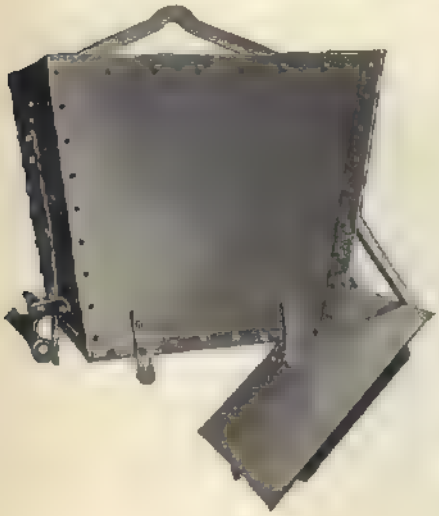
No. **202**, 2½ inches, - Each, $1 00

No. 250L. Compass, Nickel Plated, Watch Case.

No. **250L**, 1½ inch Face, Per dozen, $18 00

No. 250L.

THE "UNION" PATENT BOTTOM DUMP BUCKET



The contents of the bucket are discharged by means of a hinged bottom, and its claimed superiority over others is in the latch, or controlling means for engaging, holding and releasing the bottom. The latch automatically engages the bottom in the act of closing when the bucket is lowered for refilling, and a slight turn of the locking cam holds it reliably closed.

The latch is reversible and permits the bucket to be easily dumped at an elevation or below the level, as may be desired.

The buckets are made of the very best material and workmanship throughout.

No.	Capacity, Yards	Width at Top, Inches	Width at Bottom, Inches	Depth of Inside, Inches	Price
223	½	31	25	30	$ 75.00
224	¾	36	28	34	81.25
225	1	41	32	37	93.75
226	1½	46	35	42	125.00
227	2	51	39	45	156.25
228	2½	56	43	48	193.75
229	3	61	48	48	231.25

"CYCLOPEAN" BOTTOM DUMPING CONCRETE BUCKETS

Bottom Latched, with Springs Operated by a Lever Pulled Downward

Buckets specially designed for handling concrete are made funnel-shape, so that when the bottom is released the entire load or contents is dumped or placed in a concentrated mass, right on the spot. There is no shock to the concrete already placed, because the buckets can be lowered down onto the work in the trenches or braced excavations or forms. There is no side swing or back kick to break the tie rods, knock out bracings, or to get the forms out of alignment, thereby saving much valuable time, extra expense, as well as annoyance.

Capacity	½ Yd.	¾ Yd.	1 Yd.	1½ Yds.	2 Yds.	2½ Yds.	3 Yds.
Height, In.	28	35	36	42	42	48	48
Width at Top, In.	34	37	44	48	60	56	64
Width at Bottom, In.	26	27	30	35	40½	40	4[illegible]
Weight, Lbs.	460	560	850	1240	[illegible]80	1794	2085
Price	$7[illegible].00	$8[illegible].25	$93.75	$12[illegible]	$[illegible].25	$1[illegible]	$2[illegible].25

In Ordering, State Style of Bail Desired

Chain Bail Furnished if Desired

No. 154
With Ears on Top and Ring in Bottom for Dumping

STANDARD ORE BUCKETS

The sides and bottom are made of best quality steel plate pressed into shape by hydraulic pressure.

By this means we obtain a perfect bucket with a smooth, hard and springy surface

The rivets are countersunk, and the sides are of such shape that no part can catch upon the timbering or sides of shaft.

The bottom of the Fig. 154 Bucket is "dished," so that the ring to which the dumping chain is attached does not interfere with the bucket standing fairly on the ground.

The Fig. 154 is safer than the Fig. 153, and much preferred.

All banded around top. Strips on sides can be furnished at extra price.

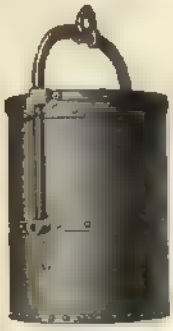
Fig. 153
Self-Dumping with Safety Link

Size, No.	Height	Diameter			Thickness of Steel	Capacity		Weight	Price Fig. 154	Price Fig. 153
		Top	Center	Bottom		Cubic Feet	Lbs. Ore			
1	30	21	24	17	No. 11	6½	750	140	$21.00	$22.00
2	32	24	27	21	No. 8	9	1,100	220	30.00	33.00
3	37	24	28	22	¼ inch	11	1,300	340	48.00	53.00
4	37	28	34	23	¼ inch	15	1,700	390	60.00	66.00

Any size or style of Bucket promptly furnished

STRAIGHT SIDE MINING BUCKETS

Used in Lead and Zinc Districts



Bucket is made in the best possible manner of heavy steel plates, and re-enforced with a band at the top.

The bail and trunnions are heavy, while the catch is strong, reliable and simple in operation

Number Bucket	Cost Cap. Lbs	Cap. Cu. Ft	Diam. Inches	Weight, Lbs	Price Each
142	300	6	22	28	$21.75
143	400	8	25	30	27.50
144	500	10	26	32	33.75
145	600	12	28½	33	36.25
146	700	14	30	35	40.00
147	800	16	32	35	46.25
148	1,000	20	34	40	56.25
149	1,200	24	35	43	58.75
150	1,500	30	37	48	66.25

WATER BUCKETS

Of the most approved pattern. Wrought iron strips are riveted to sides, providing wearing surface when used in incline shafts and making the sides perfectly smooth.

Bucket has a stiff bail and a valve in the bottom, the stem of which projects below the bottom and automatically opens when it touches the bottom, and closes it again as soon as raised.

Capacity Gallons	40	50	75	100	125	150	200	300
Length, in.	30	40	28	5	36	4	6	7
Diam. middle	20	21	24	26	28	30	33	38
Diam. [illegible]	16	17	1	2	23	23	26	30
Weight, lbs.	100	175	300	350	400	520	700	850
Price Net	$30	$40	$6	$7	$8	$15	$1.35	$1.45

UNITED STATES FLAGS

Our Peerless Brand

Made of Best Wool Bunting, with a Full Complement of Stars Sewed on Each Union

STANDARD LIST.

(Standard Sizes.)

Size, Feet Length	Size, Feet Width	Price Each	Size, Feet Length	Size, Feet Width	Price Each	Size, Feet Length	Size, Feet Width	Price Each	Size, Feet Length	Size, Feet Width	Price Each	Size, Feet Length	Size, Feet Width	Price Each	Size, Feet Length	Size, Feet Width	Price Each
3	2	$ .95	10	6	$ 6 00	16	8	$11 70	24	12	$25.00	36	24	$ 70 00			
4	2½	1 40	11	7	7 80	16	9	13 20	24	15	30 00	40	20	65 50			
5	3	2.25	12	6	7.50	16	10	14.60	24	16	32 00	40	24	77 50			
6	3	2 70	12	7	8 40	18	9	14 70	25	12½	26 75	40	25	80 00			
6	4	3 15	12	8	9 00	18	10	16 00	25	15	31 00	45	25	94 00			
7	4	3 50	14	7	9.35	18	12	18 70	26	16	34 00	50	25	100 00			
8	4	3 95	14	9	11.50	20	10	17.75	27	18	40 00	50	30	122.00			
8	5	4 45	15	8	10.90	20	12	20.50	30	15	37 40	60	40	200.00			
9	5	5 15	15	9	12 30	22	11	21 00	30	20	48 00	75	50	300.00			
9	6	5 70	15	10	13 40	22	12	22 80	36	20	57 50	100	60	500.00			
10	5	5 60	..	..	....	..	..	.....	..	..	.....	...	..	.....			

We sew a complete number of stars on each union except in the three and four foot sizes, which have but thirteen

U. S. Flags

(Government Sizes)

Length, Feet	Price Each	Length, Feet	Price Each	Length, Feet	Price Each	Length, Feet	Price Each
2	$1.60	6	$ 6 40	10	$12 80	25	$ 64 00
2½	2.40	7	8 00	12	19 20	30	96 00
3	3 20	8	9 60	15	25 60	36	120.00
4	4.00	9	11 20	18	36.00	40	160 00
5	4.80	..	..	20	48 00		....

These flags are made in strict accordance with the U. S Government specifications and are about two-thirds as great in width as in length.

Wool Bunting Procession Flags

U. S. Army Regulation

Size, Feet	Flag Only, Price Each	Flag complete, with Pole, Spear Head, Cord Cover, Boot and Strap, Price Each	Flag complete, with Jointed Pole, Brass Eagle, Cover and Patent Leather Boot Price Each	Extra for Lettering Price Per Letter
4½x5½	$3 50	$11.00	$14 50	$0.50
6 x6½	4.50	13.50	17 00	.50

UNITED STATES SILK FLAGS

Silk Flags

Machine Sewed, with Machine Embroidered Stars.

Size, Feet.	Made of Flag Silk, Price Each.	Made of Banner Silk, Price Each.
2 x 3	$ 9.00	$10.50
2½x 4	10.50	16.00
3 x 5	16.00	24 00
4 x 6	20.00	33.00
4½x 7	24.00	40.00
5½x 6	30.00	45.00
5 x 7	30.00	45.00
5 x 8	33.00	48.00
6 x 9	46 00	66.00
6 x10	50.00	72 00
6 x12	55.00	80.00
8 x12	70.00	90.00

Silk Flags

Made of Best Banner Silk with Hand Embroidered Stars.

Size, Feet.	Machine Sewed, Price Each.	All Hand Sewed, Price Each.
4 x 6	$46.00	$53.00
4½ x 7	53.00	60.00

Silk Procession Flags

Size, Feet.	Flag Silk, Price Each	Machine Sewed, Banner Silk, Price Each.	Machine Sewed, Banner Silk, with Hand Embroidered Stars. Price Each
4½ x 5½	$20.00	$33.00	$46.00
6 x 6½	33.00	48 00	61 00

Size, Feet.	All Hand Sewed with Hand Embroidered Stars, Price Each.	All Hand Sewed Complete, with Silk Bullion Fringe, Pole, Cover Boot, etc., Price Each
4½ x 5½	$53.00	$ 85.00
6 x 6½	68.00	100.00

Printed Silk

Size Inches.	Unmounted, Price Per Doz	Mounted, Price per Doz	Mounted and Fringed, Price per Dozen
2x 3	$ 0.60	$ 0.75	.....
4x 6	1.35	1.65	$ 3.00
6x 9	1.50	1.75	3 50
7x10	1.65	2.15	4.00
8x12	2.15	2.75	4.50
12x18	4 50	5.00	8 00
16x24	7.50	7 25	13.50
24x36	16 00	17 50	30 00
32x48	27 00	30 00	45 00
36x60	45 00	50 00	70 00

DECORATION SETS—Fast colors

		Per Set.
No. 1.	Brass Eagle and American Metal Shield, 20-inch, with six Battery flags, draped	$ 9.00
No. 2.	The same as No. 1, with six Garrison flags, draped	10.50
No. 3.	The same as No. 1, with six 36-inch silk U. S. flags, draped	15.00
No. 4.	Brass Eagle and American Metal Shield, 12-inch, with four Battery flags, draped	6.00
No. 5.	Same as No. 4, with four 36-inch U. S. silk flags, draped	9.50
No. 6.	American Metal Shield, 20-inch, with nine Battery flags, draped	6.75
No. 7.	Same Shield, with nine Garrison flags, draped	9.00
No. 8.	Same Shield as No. 6, with nine 36-inch U. S. silk flags, draped	15.00
No. 9.	Brass Eagle and American Metal Shield, 30-inch, with four Garrison flags, draped	15.00
No. 10	Same as No. 9, with four 48-inch silk U. S. flags, draped	26.00

Shields of Muslin and Cardboard also.

UNITED STATES FLAGS

Printed Muslin — Mounted on Sticks.

No	Size, Inches	Price Per Gross
1	2 x 3	$ 0.27
2	2½x 4	.32
3	4 x 6	.53
4	4½x 7½	.72
5	6 x 9½	1.32
5½	7 x10½	1.70
6	8 x 14	2.56
7	11 x18	3.90
7½	12 x22	5.00
8A	14 x24	5.70
8	18 x27½	8.00
9	20 x36	13.80
10	27 x43	20.00
11	30 x50	26.20
11½	36 x56	31.40
12	40 x66	49.40
12½	40 x72	60.80

Overhead Vehicle Washer

BEST MADE FOR GARAGES

ILLUMINATED OR PLAIN

Send for Prices

VEHICLES SPECIALTY CO.

26 STATE STREET HARTFORD, CONN.

The Springfield Lift

Saves tires and eliminates the dangerous pit. Let us tell you about it.

THE SHAWVER COMPANY, Springfield, O.

COMPLETE LISTS

AUTO OWNERS (CERTIFIED)
DEALERS, GARAGES,
MANUFACTURERS, JOBBERS,
GAS ENGINE MANUFACTURERS
AND MOTOR BOAT OWNERS

Auto Directories Co., Inc.

1717 Broadway, New York City

'Phone, 858 Columbus

Acme Universal Joint

Metal Covered

Absolutely Dust-Proof

Internally Lubricated

Scientifically Constructed

Special joints of any kind or size made to order for automobiles, motor boats, or other kind of machinery.

ACME MFG. CO.

Mfg. Square KALAMAZOO, MICH.

The Oil for the Engine That Wins

Vacuum MOBILOIL is *the* oil for crucial engine tests that depend on perfect lubrication as much as on the merit of the engine itself. MOBILOIL makes the selection of the right oil an easy certainty instead of a matter of expensive experiment.

VACUUM

MOBILOIL

is compounded in five different grades, each exactly adapted to a particular type of automobile engine. The use of the special grade for *your* engine avoids the possibility of expensive mistakes in lubrication, lowers cost of maintenance and reduces wear.

A valuable booklet listing every automobile made and giving correct instructions for its proper lubrication will be sent free on application. Also contains track records to date, and other valuable information. MOBILOIL in barrels and in cans with patent pouring spout is sold by dealers everywhere. Manufactured by

VACUUM OIL CO., Rochester, N. Y.

THE "AMOCO" LINE

Stands the test through thick and thin. The best oils made, so put them in

Your Automobile

Anti-Carbon Automobile Oil—Our Leader.
Amoco Automobile Oil, Light, Medium, Heavy, Extra Heavy and Steam.
" Transmission Oils and Compounds.
" Solid Oil, Cup or Graphite Grease and Varnish Soap.

Supply Houses and Garages apply for our liberal offer.

H.Channon Company. Chicago.

THE "VAJEN" HEAD PROTECTOR

For Use in Mines, Breweries, Fire Departments, Ice and Cold Storage Plants, Packers, Chemical Works, Etc.

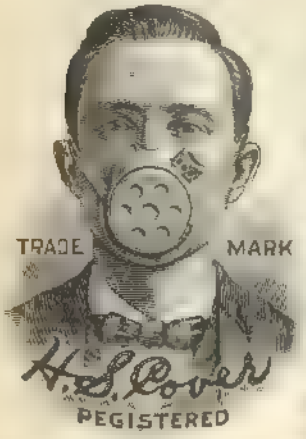
The Protector is a helmet which completely covers the head and fits tightly around the shoulders [illegible] weight rests. It [illegible] made by [illegible] of the best fire and waterproof materials, which render it proof against heat, fire, steam and all poisonous gases. Fresh air, always kept pure by the [illegible] treatment of the materials, is supplied to the wearer at the natural air pressure, from the metal reservoir attached to the back of the helmet. Weighs only 6 lbs. Can be put on in a few seconds.

Prices

The following prices include a double valve, fourteen-inch cylinder air pump, the necessary small tools and a highly polished quartered oak box, or a glass front wall case.

Style "F" complete (capacity one hour), $1[illegible]
Style "G" complete (capacity two hours), 17[illegible]
Style "H" complete (capacity three hours), 187.50

COVER'S PATENT RUBBER RESPIRATOR



The Respirator is designed for the use of persons who are exposed to the danger of inhaling poisonous dust fumes or gases.

A fine damp sponge is the best known filter for separating the impurities from the air and this in connection with the automatic valve insures perfect protection and ventilation. The sponge can be removed and rinsed in water to clean it and replaced again in one minute. The wearer will be readily convinced of the great value of the Respirator when he sees what the sponge has absorbed.

The Automatic Valve is so simple that it cannot get out of order and will always act in [illegible] what position the wearer assumes it [illegible].

The Respirator is made of the best white rubber, and is easily kept clean. It bends to fit any face perfectly and is fastened to the head with an adjustable elastic band.

Protects the Nose and Mouth

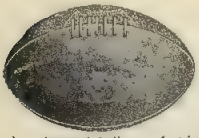
COVER'S PATENT RUBBER GOGGLES

Protects the Eyes

The Goggles fit well with the Respirator; they are made of a single piece of pure rubber and are indestructible. The lenses are clear glass and can be removed, cleaned and replaced in a moment. The cushion is a curved flange extending downwardly and outwardly from the lens portion. It has no filthy pads and is easily kept clean. Used largely by men in Foundries, Fire Departments, Chemical Works, Grinders and Polishers, etc. [illegible] **air tight**, but are furnished **ventilated** if desired. Should be **air tight** for use in irritating gases, [illegible] **ventilated** when used in most other places.

Cover's patent rubber respirators..... ...Price per dozen, $24.00
Cover's patent rubber goggles..... " " " 18.00

FOOT BALL GOODS.

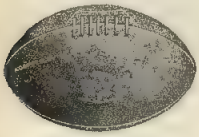


THE VICTOR OFFICIAL INTERCOLLEGIATE FOOTBALL.

Is the most perfect ball yet produced. Its patent inside lacing secures a perfectly smooth outside. The ends are symmetrically pointed, and the model has been approved by the most noted college coaches and players. Used and indorsed by leading colleges, among others, University of Pennsylvania Chicago, Northwestern, Wisconsin, Minnesota, Illinois, Lafayette, Purdue, Leland Stanford, University of California, West Point, Carlisle, Annapolis and Columbia.

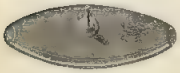
To make the Victor ball, we import specially selected and dressed English grain leather from which all possible stretch has been removed in tanning. By a system of gauges and measures we assure ourselves that each ball is perfect in every detail before we put our trade mark on it. Each ball is furnished with an inflater, and a needle for lacing The bladder is made of best pure gum rubber. Victor footballs are made in three weights A, 12 ounces B, 13 ounces: C, 14 ounces. Each ball is packed in a box and sealed.

No. 385, - - - - - - - - - - - Each, $5 00



THE VICTOR RUGBY FOOTBALLS.

No. 382, A strictly high grade ball made from English grain leather. It does not have our famous patent lace, but it is the best $4 00 ball on the market. Regulation No. 5, Each, $4 00
" 381A, A very high class American grain ball. Regulation No. 5, " 3 00
" 381B A very satisfactory full size ball, American grain. Regulation No. 5, - " 2 00
" AA, Best India grain. Regulation No. 5, - - - - - " 1 50
" CC, Fair quality India grain. Regulation No. 5, - - - - " 1 00



RUGBY BLADDER.

No. 5RS, Victor Special Intercollegiate, pure gum, gray, extra heavy, - Each, $1 25
" 5R, Standard quality, pure gum, gray, - - - - " 80

Nos. 552A and 555A.

CANVAS PANTS.

No. 552C, Best quality of heavy duck, cane thighs, extra heavy pads at hips and knees, Victor patent lace front, - Each, $2 25
" 553D, Fine quality of heavy drilling, full quilt padding, with patent lace front, Each, 1 00

CANVAS JACKETS, SLEEVELESS.

No. 550, Victor, best quality heavy duck, same as No. 552 pants. Sleeves 25 cents, extra, - Each, $1 00
" 551D, Fine quality of heavy drilling, same as No. 553D pants, strong and carefully made. Sleeves 15 cents extra, - - Each, 75

NOSE GUARDS.

No. 1P, Rubber adjustable mouth piece, - Each, $2 00

No. 539.

VICTOR HEAD AND EAR PROTECTOR.

No. 539D, A soft helmet of special fabrikoid - Each, $2 50
" 539E, A soft helmet of olive tan dressed buck Each, 2 00

No. 331.

SHIN GUARDS.

No. 331N, Brown canvas, cane ribs, Per pair, $0 75
" 331, Drab duck, cane ribs, " 1 00

FOOTBALL SHOES.

Unless otherwise specified, our shoes are fitted with Victor round cleats, which are smoother in finish than any other styles, and which consequently insure a firmer footing and are less likely to become clogged with mud. We can, however, furnish to order shoes with the Yale or the Princeton cleats.

No. 1B, Victor Special, best quality of heavy buffed Harvard calf, high tops, reinforced ankle pads, Goodyear welt, Victor cleats. The strongest, most comfortable and most durable shoe on the market, Per pair, $6 00
" 3B, Interscholastic, good quality kangaroo, strong and well made, ankle pads, Victor cleats, " 3 50

MORLEY-MURPHY HARDWARE COMPANY, GREEN BAY, WIS.

‡IRON HITCHING POSTS.

Cut showing Interior.

Cut showing Exterior.

Each

No. 322G—Hitching Arrangement, with Guard Box and Leather Strap and Snap; Strap is 1 inch Wide, 4 feet 10 inches Long; The Weight always takes up all slack in Strap whether horse is standing or lying down; The Weight is covered with Leather, which prevents noise while in use; Weight each about 20 lbs.... $8.00

CAST IRON
Painted.

HORSE HEAD.

Each

No. 614G—To go in Ground; Length Above Ground 3 feet 8 inches; Length Under Ground 2 feet 2 inches; Weight each about 90 lbs...$13.00

No. 615G—To Set in Stone; Length Above Ground 3 feet 8 inches; Weight each about 70 lbs. 10.00

ROUND HEAD.

Each

No. 612G—To go in Ground; Height 6 feet 11 inches; Diameter 2 inches, Weight each about 30 lbs. $6.00

No. 613G—To Set in Stone; Height 6 feet 11 inches; Diameter 2 inches; Weight each about 20 lbs. 5.50

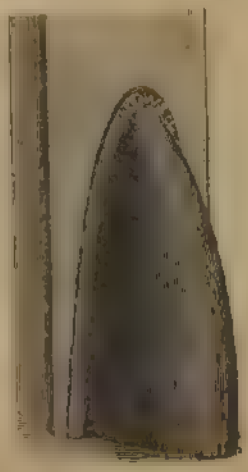
RUSTIC.

Each

No. 618G—To go in Ground; Length Under Ground 2 feet 2 inches Length Above Ground 3 feet 4 inches. Weight each about 100 lbs...$12 00

‡WHEEL GUARDS.

CAST IRON.



Per Pair

No. 337G—Extra Heavy Cast Iron; Height 16 inches, Width 7 inches; Weight per pair about 26 lbs. $3.00

No. 338G—Extra Heavy Cast Iron; Height 16 inches, Width 5 inches; Weight per pair about 22 lbs. 3.00

Packed as Ordered

‡Goods marked thus (‡) are not carried in stock and can only be furnished by shipment direct from factory

‡COPPER WEATHER VANES.

GILDED FINISH.
A Compass Furnished with Each.

ETHAN ALLEN.
Large, Handsome Showy Horse Vane.

Each

No. 636G—Ethan Allen: Height 31 inches; Weight each about 40 lbs. $40.00

No. 637G—Ethan Allen and Wagon; Height 42 inches; Weight each about 40 lbs. ... 80.00

BLACK HAWK.

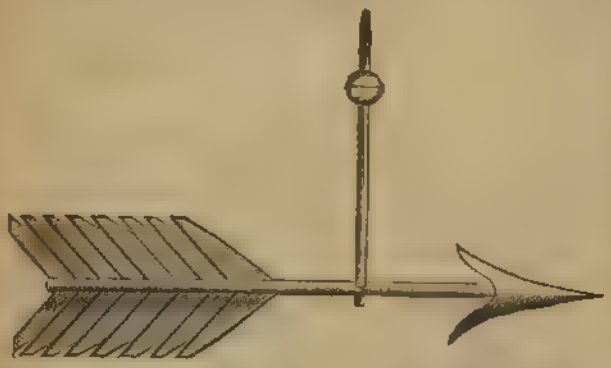
Each

No. 641G—Black Hawk; 27 inches Long; Weight each about 40 lbs. $30.00

No. 642G—Black Hawk, with Sulky and Driver; Weight each about 40 lbs. 60.00

Mounted complete, with Spire, Letters and Balls, same as No. 636G.

One in a Box.



Nos	731G	732G	733G	734G	735G
Length, inches	12	16	18	24	30
Each	$8.00	10.00	12.00	16.00	20.00

Weight Each about 26 lbs.

Nos.	736G	737G	738G	739G
Length, inches	36	42	48	60
Each	$26.00	32.00	40.00	60.00

Weight Each about 35 lbs.

Mounted complete with Spire, Letters and Balls.

‡COPPER FINIALS.

With Jackets; Ornaments Gilded Finish.

No. 817G.

NOTE.—In ordering, be sure and Send Detail Drawing showing Pitch of Roof, also state whether the tower is Square, Round, Hexagon or Octagon.

No. 812G.

Each

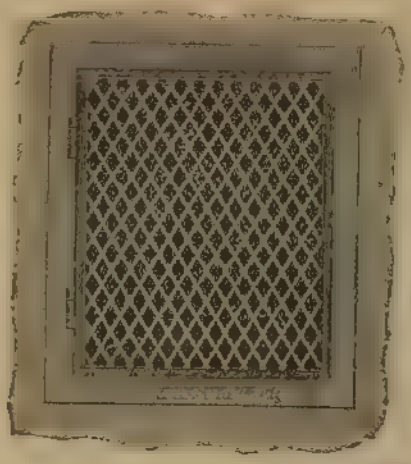
No. 817G—Total Height over all 4 feet; Weight each about 20 lbs. $32.00

No. 812G—Total Height over all 4 feet 6 inches; Weight each about 15 lbs. 19.00

One in a Box.

‡STALL WIRE WINDOW GUARDS.

WROUGHT IRON FRAME.
Made any Size to Order.



Per Square Foot

No. 331G—Stall Window Guards $0.70

Weight per Square Foot about 2 lbs

Per Pair

Hinges for Stall Window Guards $1.00

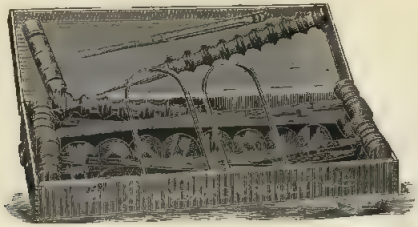
Each

Catches for Stall Window Guards $0.80

Packed as Ordered.

‡Goods marked thus (‡) are not carried in stock, and can only be furnished by shipment direct from factory.

CROQUET.



EIGHT BALL SETS.

No. **A**, A plain set, Mallets oiled, Balls and Stakes varnished, ten Arches, with book, complete in dovetailed box with hinged covers. Weight per set 22 pounds, - Per set, $1 50

" **XA**, All parts varnished, Mallets painted, two eight colored Stakes, ten Arches, with book. Weight per set 22 pounds, Per set, 2 00

" **1**, Handles, Balls and Mallets painted and striped, two large fancy Stakes. A nicely finished set. Weight per set 23 pounds, Per set, 2 50

" **2**, Mallets of neat design, Balls, Handles, and Mallets painted and striped, two large fancy Stakes, heavy galvanized Arches. A first-class set at a low price. Weight per set 23 pounds, - - Per set, 2 75

SIX BALL SETS

No. **10**, Same as A, Mallets oiled, Balls and Stakes varnished, ten Arches, with book, dovetailed Box. Weight per set 18 pounds, Per set, $1 40

FOUR BALL SETS.

No. **5**, A Four Ball set, same as A, in flat dovetailed Box, with hinged cover. Weight per set 15 pounds, Per set, $1 00

" **X5**, A Four Ball set, same as XA, all varnished, in flat dovetailed Box, with hinged Cover. Weight per set 15 pounds, Per set, 1 50

PROFESSIONAL SETS.

No. **6**, Four eight inch Mallets, short striped Handles, two large Stakes, heavy galvanized Arches. A very popular set. Weight per set 17 pounds, - - Per set, $2 00

" **8**, Four nine-inch Mallets, handsomely painted, short Handles, beaded and striped, shellac and bronze finish. Two elegant beaded Stake, heavy Arches, with Sockets, striped Balls. A very fine set for professional players. Weight per set 20 pounds, - - Per set, 4 50

EIGHT BALL PROFESSIONAL SETS.

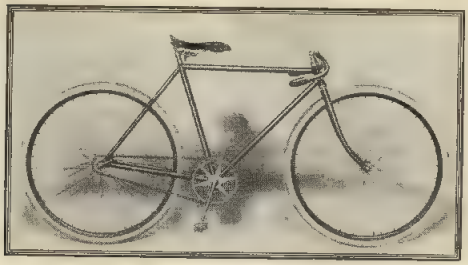
No. **9**, Eight eight inch Mallets, short striped Handles, two large Stakes, heavy galvanized Arches. Weight per set 26 pounds, Per set, 3 00

Every set of Croquet contains a book of instructions and rules.

The boxes are dovetailed, with hinged cover. All Croquet crated three sets to crate.

MORLEY-MURPHY HARDWARE COMPANY, GREEN BAY, WIS.

BICYCLES.



Specifications.

MEN'S MODEL BICYCLES.

Regular Equipment.

Frame—Main Tubes 1 inch, Flush Joints, Crank Bracket dropped 2⅝ inches, Fork with Drop Forged Flat Crown, Enameled to match Frame, Sides reinforced and tapered, Height 22 inches.

Finish—Black with Red Head, Rims to match. Options: Plain Black, Royal Blue with Red Head, Red with Black Head, Rims to match.

Wheels—28-inch diameter, 32 Spokes front, 36 rear. Hubs of new spindle design.

Tires—1⅜ inch Single Tube guaranteed. Option 1½ inches. Wedgeway.

Cranks—One piece Drop Forging of High Carbon Special Crank Steel, 7 inches.

Sprockets—Accurately finished and milled to fit $\frac{3}{16}$ inch chain, 24 teeth front, 8 rear (84). Option 22 and 26 front, 7 and 9 rear.

Chain—$\frac{3}{16}$ inch Diamond, 1 inch pitch.

Handle Bar—20 inch adjustable. Option 22 inch.

Equipment—Wheeler Padded Saddle, Rat Trap Pedals 3⅝ inches of neat design, Tool Bag and Tools

Woman's Model—General specifications same as Men's Model, with the following exceptions: Regular equipment, Black Enamel Finish, Gear 68, 22 x 9 Sprockets, Cranks 6½ inches, Pedals 3½ inch combination, Saddle, Wheeler, Steel Rear Wheel and Chain Guards. Options, Frame 20 or 24 inches, Gear 74, 24 x 9, Pedals 3⅝ inch combination.

Options.

Frame Heights—20 inches, 22 inches, 24 inches and 26 inches.
Colored Heads, 1 00 extra. G. & J. Rims and Tires extra, $4 50.

Men's Model, complete with Brake,	Each,	$35 00
" " " without Brake,	"	30 00
Woman's Model with Brake,	"	37 50
" " without Brake,	"	32 50

"FAVORITE" JUVENILE BICYCLES.

BOYS' MODEL.

No. 20, 20-inch Wheels. No. 30, 24-inch Wheels. No. 40, 26-inch Wheels.

Weight—No. 20, 18 lbs.; No. 30, 20 lbs.; No. 40, 22 lbs.
Bearings—Three point ball cases and cones, ground true, dust-proof.
Hubs—Turned from one solid piece of steel.
Saddle Post—"L" pattern.
Spokes—Tangent, plain not swaged.
Chain $\frac{3}{8}$ inch, hardened blocks.
Yoke—Barrel pattern, bearings lubricated direct, no flushing of yoke with oil.
Tread 43½ inches.
Gear 54 or 60 for No. 30; 58 or 65 for No. 40; 45 or 50 for No. 20, boys'. No. 35, 54 or 60; No. 45, 58 or 65; No. 25, 45 or 50, girls'
Forks—Flat crown, enameled.
Handle Bars Reversible or rigid upturned.
Sprockets—(Large) 18 or 20 tooth, Steel, Nickel Plated.
Chain Adjusters—"Favorite" eccentric.

No. **20**,	Each, $22 50
" **30**,	" 22 50

Frame—Cold drawn brazed tubing; $1\frac{1}{8}$ inch diameter, 20 inch; 1 inch diameter, 24 to 26 inch; No. 20 gauge tubing. ¾ inch rear forks.
Rims—Wood, interlocked, one piece.
Tires—"Favorite" single tube, 1¼ inch, 20 inch and 24 inch; 1⅜ inch, 26 inch. Guaranteed.
Pedals—Rat-trap, boys'; combination girls'
Saddle—"Brown" shape, padded.
Finish—Jet black or maroon.
Height of Frames—20-inch Wheels, 16 inches; 24-inch Wheels, 18 inches; 26 inch Wheels, 19 inches
Fittings—Tool bag, wrench and oil can; pump and kit extra, and not furnished unless ordered.
Grips Wound leather.
Cranks—4½ inches long on No. 20 and No. 25; 5½ inches long on No. 30 and No. 35; 6 inches long on No. 40 and No. 45.

No. **40**,	Each, $25 00
Brakes,	" 1 25

GIRLS' MODEL.

No. 25, 20-inch Wheels. No. 35, 24-inch Wheels.
No. 45, 26-inch Wheels.

Frame—Main tubes double curve.
Pedals—Combination.
Height of Frames—No. 25, 16 inches; No. 35, 18 inches; No. 45, 19 inches.
Handle Bars—Rigid upturned.
Guards—No dress or chain guards furnished regularly.

Other specifications same as Boys' "Favorite."

No. **25**,	Each, $22 50
" **35**,	" 22 50
" **45**,	" 25 00
Brakes,	" 1 25

MORLEY-MURPHY HARDWARE COMPANY, GREEN BAY, WIS.

GUITARS Continued

No. 126F

No. 146½

No. Each

126F Real rosewood, standard size, hand-polished, beautifully figured rosewood back and sides, well matched white spruce front inlaid with fancy colored wood marquetry around edge and sound-hole bound with white celluloid, back has fancy inlaid strip through center and is also bound with white celluloid, mahogany neck with ebony finger-board bound with white celluloid and ornamented with fancy pearl position dots, German silver frets, nickel plated patent heads **$14 00**

No. Each

146½ Rich rosewood, standard size, very highly polished, selected white spruce front, both front and back edges and sound-hole inlaid with a beautiful marquetry, also bound with white celluloid, very handsome wood inlaid strip in back, ebony bridge of artistic design, celluloid imitation ivory bridge pins and end pin, mahogany neck, ebony finger-board with fancy pearl positions, finger-board bound with white celluloid, head-piece rosewood veneered and celluloid bound, handsome pearl ornament in head-piece, celluloid heel, fine quality patent head **$16 50**

MANDOLINS

No. 5

No. 15

No. Each

5 Maple and walnut, 9 ribs with colored inlaying between each rib, rosewood finished skirt and cap, natural mahogany finished neck with shaped heel and head, white spruce top with fancy inlay around sound-hole and imitation tortoise shell guard-plate, walnut finger-board with pearl position dots and metal frets, ebonized bridge, nickel-plated tail-piece and brass patent heads **$3 50**

15 Mahogany and walnut, 11 ribs with colored inlaying between each rib, rosewood finished cap and skirt, natural mahogany finished neck, shaped heel and scroll head, ebony finger-board with pearl position dots and German silver frets, white spruce top with fancy colored decalcomania ring around sound-hole and fancy colored butterfly guard-plate, edge is inlaid with fancy colored border and bound with white celluloid, ebonized bridge, nickel-plated shell tail-piece and brass patent head . **6 00**

20 Rosewood, hand-polished, 9 ribs with inlaying between each rib, rosewood skirt and cap, white spruce top with colored marquetry ring around sound-hole and edge, edge is bound with white celluloid, black inlaid guard-plate, mahogany neck with shaped heel and scroll head, veneered head, ebonized finger-board with pearl position dots and German silver frets, nickel-plated tail-piece and brass patent heads **6 70**

25 Fancy rosewood, 11 ribs with white inlaying between each rib, rosewood, fancy grained skirt and cap, white spruce top with fancy marquetry around top and sound-hole, top edge is bound with white celluloid, natural mahogany finished neck with shaped heel and scrollhead, ebony finger-board with pearl position dots, metal frets, fancy imitation tortoise guard-plate with fancy celluloid design, nickel-plated tail-piece and brass patent heads **7 40**

D 20 ribs, solid rosewood, white strips between ribs, rosewood cap, celluloid bound, front of fine eastern spruce, edge and sound hole bound with white celluloid and inlaid with beautiful marquetry, mahogany neck, ebony finger-board, 4 pearl position dots, veneered head, finger-board and head are bound with white celluloid, fancy scroll guard-plate, best nickel-plated patent head, nickel-plated sleeve protector tail-piece. The instrument is highly polished and acknowledged by amateurs and professionals alike to be perfect and unsurpassed as to beauty and quality of tone, etc **10 50**

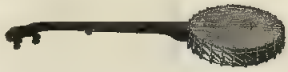
No. D

No. 20

BANJOS

No. 612

No. 724



No. 824

No. Each

606 Mahogany finished, 11-inch rim, fitted with nickel-plated band, square stick through center, nickel plated head-plate, 6 nickel-plated hooks, hexagon brackets, 19-inch finger-board, 3 pearl position dots, German silver frets, boxwood pegs, steel strings, nickel-plated tail-piece, calf head **$2 90**

612 Mahogany finished, 11-inch rim, fitted with nickel-plated band, square stick through center, nickel-plated head-plate, 12 nickel-plated hooks, hexagon brackets, 19-inch finger-board, 3 pearl position dots, German silver frets, boxwood pegs, steel strings, nickel-plated tail-piece, calf head **4 60**

724 Mahogany finished, 11-inch rim, fitted with nickel-plated band, outside edge is spun over, square stick through center of rim, nickel-plated head-plate, 24 nickel-plated hooks, hexagon brackets and nuts, nickel-plated stretcher band, 24-inch mahogany finished neck fitted with 19-inch ebonized finger-board, 5 pearl position dots, scroll head, German silver frets, boxwood pegs, nickel-plated tail-piece and steel strings, fine calf head **6 70**

824 Mahogany finished, 11-inch rim, heavy plated nickel hoop with both edges spun over, has tapered square stick through center of rim, nickel-plated head-plate, 24-inch highly finished birch neck, veneered head, 19-inch rosewood finger-board fitted with fancy pearl position dots, and 22 German silver frets, hoop has 38 nickel-plated hexagon brackets, nickel-plated notched stretcher band, boxwood pegs, nickel-plated tail-piece and steel strings, fine calf head **9 00**

VIOLINS—Continued

HALF SIZE

No.		Each
470	Full orange color varnish fine pattern flamed wood, very [illegible] finished full ebony trimmed	$15 00
916	[illegible] medium model [illegible] finished ebony and finished, light [illegible] pattern flamed wood full ebony trimmed	18 20

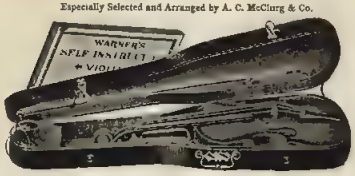
No.		Each
19½	Red and amber shaded, good model and finish	$4 00
21½	Light brown color, shaded, good model and finish	4 50
30	Light brown shaded, fine model, ebony finger-board and tail-piece	5 00
30½	German Italian school, dark brown color, good model and finish	5 50
49½	Brown shaded, fine model, ebony finger-board and tail piece	8 32
24½	Stradivarius model, amber and brown color, fine model and tone, full ebony trimmed	12 00

THREE-QUARTER SIZE

No.		Each
19½	Red and amber shaded, good model and finish	$4 60
21½	Light brown color, shaded, good model and finish, ebony finger-board and tail-pieces	5 24
30	German Italian school, dark brown color, good model and finish, ebony finger-board	5 84
49½	Brown shaded fine model, ebony finger-board and tail piece	9 10
24½	Stradivarius model, dark brown color, fine model and tone, ebony finger-board and tail-piece	12 80

VIOLIN OUTFITS

Especially Selected and Arranged by A. C. McClurg & Co.



No.		Per set
31	Contains 1 violin No 13; 1 violin bow No. 259; 1 wood violin case No 4, 1 set violin strings No 38; 1 piece rosin No. 7; 1 Warner's Instructor	$6 00
33	Contains 1 violin No. 75, Stradivarius model; 1 violin bow No 23, 1 wood violin case No 2; 1 set violin strings No. 300, superfine quality; 1 piece violin rosin No 10, 1 Warner's Instructor; 1 free lesson certificate	10 00
35	Contains 1 violin No 70, Stradivarius model, 1 violin bow No 165, 1 wood violin case No 4, 1 set violin strings No 300 superfine quality, 1 piece violin rosin No 10, 1 Warner's Instructor, 1 free lesson certificate	12 50
37	Contains 1 violin No 918, Amati model, 1 violin bow No 17, 1 wood violin case No 4, 1 set violin strings No 300 superfine quality, 1 piece violin rosin No 11, 1 Warner's Instructor	32 00
39	Contains 1 violin No 251, Conservatory model, 1 violin bow No 26, 1 violin case No 5, 1 Exposition model, 1 set violin strings No 300, superfine quality, 1 piece violin rosin No 20, 1 Warner's Instructor	28 00

VIOLIN CASES

No.		Each
1	Pasteboard, marbled, good quality	80 40
2	Wood, American, black varnished, half lined with flannel, handle and hooks without lock	1 76
4	Wood, American, black varnished, half lined with flannel, handle and hooks, with lock	2 20
11	Wood, ½ size, same as No. 2	1 76
12	Wood ¾ size same as No. 4	2 20
20	Exposition model, black wood, handle and spring, trunk clasp, full flannel lined, nickel-plated trimmings	4 00
40	Black sea gum leatrel, black leather trimmings, full flannel lined, nickel-plated trimmings	6 80
21	Black pebble leather, full lined with velvet, leather handle, steel valance to protect against rain or dust, nickel lock, trunk latches, black color only	9 00

VIOLIN BOWS

FULL LENGTH

No.		Per doz.
205	Maple, red painted, ebony frog, inlaid dot, bone slide and button	$6 80
23	Brazil wood, ebony frog, pearl inlaid dot, pearl slide German silver button	14 00
165	Brazil wood, ebony frog, pearl eye inlaid, pearl slide, full German silver lined, German silver button, leather grip	19 00
17	Brazil wood, imitation snakewood, ebony frog, inlaid pearl flowers, pearl slide, German silver button	19 00
28	"Vuillaume," Brazil wood, ebony frog, double pearl eye, pearl slide, full German silver lined, German silver button, leather grip	22 00
162	Brazil wood, round stick, rounded ebony frog, pearl eye, pearl slide, German silver lined, fancy German silver button, leather grip	24 00
286	Brazil wood, octagon stick, ebony frog, double pearl eye, pearl slide, full German silver lined, German silver button, leather grip	24 00
286	Pernambuco wood, dark color, octagon stick, ebony frog, pearl eye, pearl slide, full German silver lined, German silver button	35 00
660	"Remoujl," Brazil wood, dark color, ebony frog, double pearl eye, pearl slide, full German silver lined, German silver button, leather grip	28 00
33	Brazil wood, imitation snakewood, imitation ivory frog and button, double pearl eye, German silver lined	28 00

Half-size Bows

No.		Per doz.
18	Brazil wood, ebony frog, leather grip, inlaid dot, pearl slide, bone button	$11 00
24	Brazil wood, ebony frog, leather grip, inlaid dot, pearl slide, German silver button, better quality	13 00
21	"F. Wenzel," Brazil wood, ebony frog, pearl slide, pearl eye, full German silver lined, German silver button	17 50

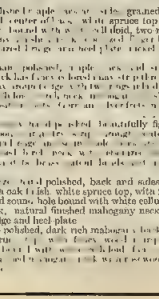
Three-quarter Size Bows

No.		Per doz.
30	Brazil wood, ebony frog leather grip, inlaid dot, pearl slide, bone button	$11 00
36	Brazil wood, ebony frog, leather grip inlaid dot, pearl slide, German silver button, better quality	13 20
31	"L. Wenzel," Brazil wood, ebony frog, pearl slide, pearl eye, full German silver lined, German silver button	18 50

GUITARS

No. 90

No.		Each
90	Stained imitation mahogany, standard size, maple rim and back, spruce top, colored ring inlaid sound-hole, mahogany finished neck imitation ebony finger-board and heel-plate, metal frets, pearl position dots, nickel-plated tail piece, bone nut, heads fitted with wire strings	$3 40
96	Rosewood finish, standard size selected maple back and sides, natural grained rosewood finish, fancy white spruce top with colored wood inlay edge, bound with white celluloid, fancy colored wood two-ring sound-hole, imitation inlay stripe through center of back, brass plated heads	4 20
101	Mahogany finish, standard size hand polished maple back and sides, dark mahogany, white spruce top, natural finish, with colored wood edge and bound with white celluloid, fancy colored ring sound-hole, [illegible] inlaid stripe through center of back, rosewood finger-board and heel plate, fancy mother of pearl position dots, nickel-plated tail piece, nickel-plated tuning-pegs, brass plated heads	4 80
111	Mahogany finish, standard size hand polished maple back and sides, grained mahogany finish, fancy white spruce top with colored wood inlay stripe through center of back, white spruce top with fancy colored ring sound-hole, [illegible] inlaid stripe through center of back, bound with white celluloid, two ring colored wood sound-hole, [illegible] rosewood finger-board and heel plate, fancy mother of pearl position dots, nickel-plated tail piece, nickel-plated tuning-pegs, brass plated heads	5 70
121	Mahogany finish, standard size hand polished, maple back and sides, high grained and stained in rich dark mahogany, back and sides [illegible] white spruce top, with fancy colored wood inlay stripe through center of back, bound with white celluloid, [illegible] rosewood finger-board and heel plate, pearl position dots, German [illegible] plated tail-pieces, [illegible]	6 50
125	Dark mahogany finish, standard size hand polished, beautifully figured dark mahogany back and sides, [illegible] white spruce top, [illegible] inlaid stripe through center of back, bound with white celluloid, [illegible] rosewood finger-board and heel plate, pearl position dots, German [illegible] plated tail-pieces	8 00
134	Quarter-sawed Parlor size, standard size, hand polished, back and sides of rare figured quarter-sawed oak, in rich dark mahogany finish, oak finish white spruce top, with fancy wood marquetry inlay, around front and back edge and sound-hole bound with white celluloid, fancy marquetry inlay strip through center of back, natural finished mahogany neck with rosewood veneered head, ebony finger-board, bridge and heel plate	8 26
135	Genuine mahogany, standard size hand polished, dark rich mahogany back and sides, beautifully matched and figured, white spruce top with fancy wood marquetry inlay around front and back edge and sound-hole bound with white celluloid, fancy marquetry inlay strip through center of back, natural finished mahogany neck veneered with rosewood, ebony finger-board, bridge and heel plate	9 60
		10 50



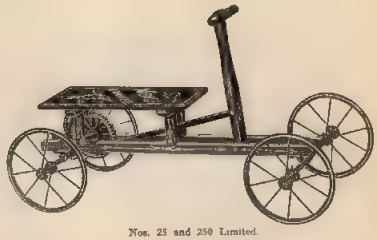
No. 101

PRICES SUBJECT TO CHANGE WITHOUT NOTICE

HAND CARS AND WAGONS.

WABASH HAND CARS.

Nos. 20 and 200.



Nos. 25 and 250 Limited.

These hand cars are built of steel and are thoroughly substantial, equipped with Wabash Wheels.

		Per dozen
No. 20.	Steel Tires, wheels, 11 and 15 in., for boys or girls up to 10 years	$54.00
No. 200.	With Rubber Tires, otherwise same as No. 20	78.00

One-sixth dozen in a crate.

The Wabash Limited is 43 in long, 20 in. wide and 13 in. high.

Wheels 11 in. in diameter and all alike, so that when the drive wheel begins to show wear the boy can change the wheels on the axles, this gives him four wheels wear on the driving side. The rear wheel on the left hand side of the car is made stationary to the axle by means of a malleable clutch which fits any Wabash wheel

The Frame is squared and framed in such a way as to secure strength to withstand any strain. The gears run free and have turned bearings

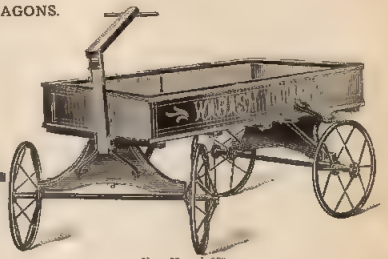
Geared for Speed, adjusted to run easy with sweep enough to the lever to exercise every muscle of the operator's body and yet not overtax any, the seat is so arranged to seat any boy or girl in the most comfortable position while operating the car, the tin cap over the gear prevents the clothing from getting into the cogs or oil. This is important.

Handsomely Painted in bright, lasting colors, seat is green, the gear and wheels with a special bright red, beautifully striped and ornamented.

		Each
No. 25.	Wabash Limited, with Steel Tires	$4 50
No. 250.	Wabash Limited, with Rubber Tires	5 50

WABASH WAGONS.

Nos. 32 and 320.



Nos. 37 and 370.

		Per dozen
No. 32.	Steel Tires, Box 34 x 16x 5½; wheels, 11 and 15 in.	$66 00
No. 320.	With Rubber Tires, otherwise same as No. 32	89.00

One-sixth dozen in crate, shipping weight 300 lbs per dozen ten cents each crating charged if packed one-twelfth dozen in crate.

		Per dozen			Per dozen
No. 32.	Seats, one-twelfth dozen in crate	$10 00	No. 32.	Shafts, one-twelfth dozen in bundle	$10.00

The Wabash Coaster Wagon No. 37. Has Box 16 in wide, 34 in long and 5 in deep outside, wheels all 11 in Axles ½ in round steel, designed and built to serve as a coaster.

The Gear is the simplest possible construction, made of hardwood and well braced from the box bottom forward and back

The Front Wheels turn under to the center, which permits the wagon to turn on a narrow walk The wheels, the foundation of the wagon, are Wabash Wheels in every sense, being our own design and invention. They have a Tee Steel rim of light-weight and superior strength Wabash wheel rims never settle between the spokes to cause that disagreeable bumping, pounding noise as is common with other steel wheels By reason of the substantial rim the spokes may be drawn absolutely tight, thus insuring a true and noiseless wheel. The gear is finished in a handsome bright red, the body on the natural wood, trimmed with red, and all handsomely ornamented and striped

		Each
No. 37.	With Steel Tires	$4.00
No. 370.	With Rubber Tires, otherwise same as No. 37	5 00

KNURLED CUP POINT NAIL SET

No. 999

2/32 inch	per dozen	$2 00
3/32 inch	" "	2 00
4/32 inch	" "	2 00
6/32 inch	" "	2 00
Assorted	" "	2.00

KNURLED CENTER PUNCHES

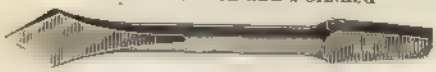
No. 995

These punches are the companion tools to our No. 999 Nail Sets above described, and are knurled their entire length.
The diameter of steel at knurling is 3/8 inch
Price . . . per dozen $2.50

COUNTERSINK BITS

FOR IRON

Cast Steel. Blued and Polished



No. 3 Flat. Price each $0 15. Per dozen $1 25

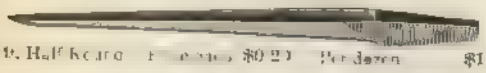
FOR WOOD

No. 5, Snail Price each $0 15 Per dozen..... $1.25

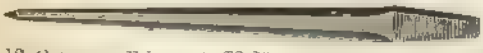
REAMER BITS

Best Tool Steel. Full Polished

No. 8, Square, Price each $0 15 Per dozen.....$1 50



No 9, Half Round Price each $0 20 Per dozen $1 80



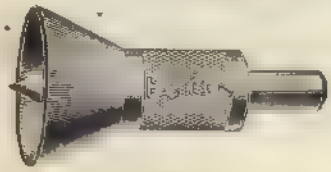
No. 10 Octagon Price each, $0.20 Per dozen... $2 00

SOLID DRIVE PUNCHES

No.	00	0	1	2	3	4	5	6
Size, inch	10/32	5/32	6/32	7/32	8/32	9/32	10/32	11/32

Made of 5/8 inch Octagon Cast Steel.
Length, 6 inches average weight per doz. 3¾ lbs., per 1 $0 30

MACHINISTS' BELL CENTERING PUNCH

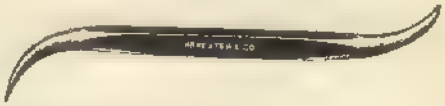


Full Polished

No. 50, Centers from 3/8 inch to 1½ inch. Per dozen.....$8 00

COTTER PIN EXTRACTORS

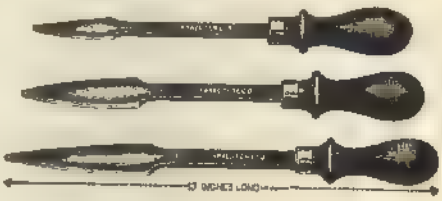
No. 236, Polished



7 inches long, ½ square tool steel. Each..... $0 36

CURVED BEARING SCRAPERS

Guaranteed Hard and Perfect

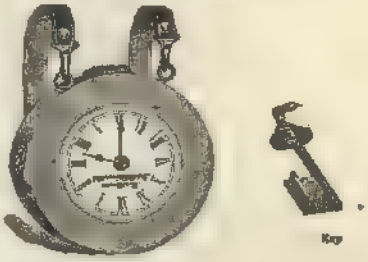


Price set of three.....$3.00

IMPROVED PORTABLE WATCHMAN'S CLOCK

Approved by the National Fire Protection Association for Use under the Rules and Requirements of the National Board of Fire Underwriters Covering Portable Watch Clocks

CANNOT BE TAMPERED WITH



The clocks are made in two sizes, 9 keys and 16 keys. The 9-key size is only for nine stations while the 16-key size can be arranged for any number of stations.

The following are the principal features of improvements.

1st. To duplicate the key our dies and matrix *must* be used Keys cannot be purchased without application by the proper authorities.

2d. The case is made of aluminum for lightness and to prevent tarnishing or injury from acids or grease

3d. The dial is arranged for twenty-four hours This gives a record for the Sunday registering when necessary

Price complete with 9 stations $65.00
Price complete with 16 stations 75.00

Complete information regarding these clocks will be furnished upon application

SHIP AUGERS

With or Without Starting Screw

Size, inches, 16ths	Twist, inches	Price per Dozen	Size, inches, 16ths	Twist, inches	Price per Dozen
4 to 8	7½ to 9½	$ 7 50	37 and 38	15	$ 86 00
9 and 10	12	9 00	39 " 40	15	101 00
11 12	12	10 [illegible]	41 " 42	15	117 00
13 14	12	12 00	43 " 44	15	130 00
15 16	12	13 50	45 " 46	15	144 00
17 " 18	12	15 00	47 " 48	15	158 00
19 " 20	15	16 50	49 " 50	15	173 00
21 " 22	15	18.00	51 " 52	15	187 00
23 " 24	15	21 00	53 " 54	15	201 00
25 " 26	15	24.00	55 " 56	15	216 00
27 " 28	15	25.50	57 " 58	15	23[illegible] 00
29 " 30	15	31 50	59 " 60	15	24[illegible] 00
31 " 32	15	38 00	61 " 62	15	260 00
33 " 31	15	57 00	63 " 64	15	271 00
35 " 36	15	72 00			

SHIP AUGER CAR BITS

With or Without Starting Screws. 12 Inch Twist

Size in 16ths	Price Dozen	Size in 16ths	Price Dozen
4	$ 8 50	15	$14 00
5	8 50	16	14 50
6	9 00	17	15 50
7	9 50	18	16 00
8	10 00	19	17 00
9	10 50	20	17 [illegible]
10	11 00	21	18 50
11	11 50	22	19 00
12	12 00	23	2[illegible] 50
13	12 50	24	22 00
14	13 00		

MACHINE BITS

Cast Steel

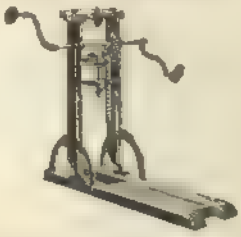
Size in 16ths	4 5 in Twist Doz	4 5 in Twist Each	8 in Twist Doz	8 in Twist Each	10 in Twist Doz	10 in Twist Each	12 in Twist Doz	12 in Twist Each
4	$ 7.80	$0.75	$ 9.56	$0 90	$10 92	$1 0[illegible]	$ [illegible] 48	$1 20
5	8.40	.80	10.08	1.00	11 76	1.15	13 1[illegible]	1 [illegible]
6	9.00	.90	10.80	1.05	12 60	1.25	14 1[illegible]	[illegible] 40
7	9.90	.95	11 88	1.15	13 86	1.35	15 8[illegible]	1 55
8	10.80	1.05	12.96	1.25	15 12	1.50	17 [illegible] 8	[illegible] 70
9	12.00	1 20	14.40	1.40	16 80	1.65	19 [illegible]	1 90
10	13.20	1.30	15 84	1.55	18 48	1 80	21 12	2 10
11	14.40	1 40	17 28	1.70	20 16	2.00	23.0[illegible]	2 30
12	15.60	1 55	18.72	1.85	21.84	2 15	24 [illegible]6	2 [illegible]5
13	16.80	1 65	20 16	2.00	23.52	2 35	26 [illegible]8	2 65
14	18.00	1.80	21 60	2.15	25.20	2 50	28 [illegible]8	2.85
15	19.20	1 90	23 04	2.30	26.88	2 65	[illegible]	3 05
16	20 40	2.00	24 48	2 40	28.56	2 85	[illegible]	[illegible] 25
17	21 60	2.15	25.92	2 55	30 24	3.00	[illegible]	[illegible] 45
18	22.80	2.25	27.36	2.70	31 92	3.15	3[illegible] 48	3 60

Larger sizes quoted upon application

BONNEY'S ADJUSTABLE HOLLOW AUGERS

No. 4. Cuts ¾ to 1 inch. . Per doz., $30.00

BORING MACHINES



No 1. Upright without Augers Each, $4 50
No 2 Angular " " 1 00

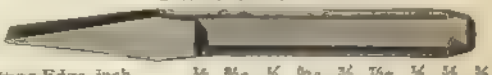
HAND COLD CHISELS

Oil Finished

Sizes of Octagon Steel, inch	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1
Full length inches...	[illegible]	5 [illegible]	5 [illegible]	6	6 [illegible]	7	8	8
Average weight per doz., lbs	[illegible]	1	2[illegible]	4	[illegible]	[illegible]	[illegible]	20

No 40. Made of American Solid Cast Steel Per pound $0 [illegible]0
No 45. " Extra Quality .... " " [illegible]0
No 60. " Jessop's English " .... " " 50

CAPE CHISELS



Cutting Edge, inch.....	⅛	9/16	¼	5/16	⅜	7/16	½	⅝	¾	⅞
Octagon Steel "	½	½	⅝	⅝	⅝	¾	¾	¾	⅞	⅞

When ordering give size of **Cutting Edge** wanted.

No. 50. Made of American Solid Cast Steel... Per pound. $0 40
No. 70. " Jessop's English " " 80

DIAMOND POINT CHISELS

Sizes of Point, inch..	¼	5/16	⅜	½
Sizes of Octagon Steel, inch	½	⅝	¾	⅞

When ordering give size of **point** wanted.

No 55. Made of American Solid Cast Steel ..Per pound $0 45
No. 75. " Jessop's English " " 65

ROUND NOSE CHISELS

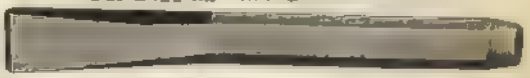
Sizes of Point, inch.....	¼	5/16	⅜	½
Sizes of Octagon Steel, inch.....	⅝	¾	¾	⅞

When ordering give size of **point** wanted

No 65 Made of American Solid Cast Steel ..Per pound, $0 45
No 85. " Jessop's English .... " " 65

LONG BRICK CHISELS

For Digging Through Brick Walls



Size of Octagon Steel ¾ inch Inches 16
" " " ⅞ " " 18
" " " 1 " " 20
Price. .... Per pound $0 30

Specialty Clocks--Standard Regulators

No. 784. Traveling Clock (New Haven). Seal grain leather, 3¼x3 in., back closes with button clasp, leather handle, 2 in. dial, bevel glass Assorted colors.
Each 1.60

Traveling Clock. Made by W. C. Co. full leather cased with flap back.
Each..... 1.15

215

1620

Mission Clock. Very Quaint, yet neat, made of weathered oak, strongly constructed with brass hands and numbers. Each size in three good models. These are in great demand for premium purposes It is something of a novelty now, guaranteed goods.
No. 210. 12 in. high, 3 styles, each **1.35**
No. 215. 20 in. high, 3 styles, each **2.50**

No. 1620. Miniature Clock. Made in same style as the cuckoo clock, about 7 in. high, 2½ in. dial, carved and ornamented case of walnut wood natural finish, winds by weight, has good brass works and is as good as anything in the imported clock line; a very fine article for premium purposes. Each ..... .38

CONROY COMBINATION CLOCK

New Haven Clock Company make, strictly high grade ornamental, guaranteed clocks.

With Calendar, Barometer, Thermometer and Spirit Level, oak or walnut, 23¾ in. high, 18 in. wide, 8-day, half hour strike, a very desirable and reliable timekeeper. A popular selling style.
Each **2.60**

"ARION" OFFICE OR HALL REGULATOR

(Waterbury Clock Co.)

12 in. dial octagon drop. Guaranteed standard time. Solid oak only. High gloss polish. Fancy veneer front. Warranted by the manufacturer. 27 in. high.

No. 15 8 day time 2 60
No. 16 8 day time with calendar 2.95
No. 17, 8 day time strike wire bell 3.25
No. 18, 8 day time strike calendar 3.55

STANDARD REGULATORS.

Good, reliable timekeepers, for halls, offices, stores, shops, etc., etc. Each clock guaranteed.

Springfield.

Maywood.

Springfield Regulator. (Waterbury.) Very handsome designed case of solid oak. Fine gloss polish, ornamented top and bottom. Hand carved. Guaranteed to be extra fine accurate timekeeper, 8 in. dial, 39½ in. high, 16½ wide.
No. 20. 8 day time 4.00
No. 21 8 day time calendar 4.25
No. 22. 8 day time strike 4.75
No. 23. 8 day time strike calendar 5.00

Maywood, Regulator. New Haven). Hand carved in very neat design. 8 in. dial, guaranteed absolutely accurate timekeeper. Suitable for large offices, factories or shops. 48½ in. high, 17 in. wide. Fine gloss finish.
No. 26. 8 day time. Each 5.00
No. 27. 8 day time calendar 5.50
No. 28. 8 day time and strike 5.90

The "Victor" Assortment of Kitchen Clocks

This is a Genuine Legal Tender for your money.

No. 227 "Victor" Assortment, wooden kitchen clocks, 6 clocks in case, 3 styles, 2 of each, entirely new original designs, 22¾ in. high, handsome machine carved cases, ornamental designs, decorated glass doors, heavy extension molding base representing the very latest art in clock making. New American 6 inch dials fitted with 8 day half hour strike movements with turn-back gearing. It would be a difficult matter to build a clock of a better value at the price we quote these. The exterior finish is unusually well executed and the works are of the best guaranteed make; assortment of 4 oak and 2 walnut in each case sold only by case. Per case of 6 ..... 3.75

The "Clock" That'll Make You Customers

Consider the meaning of this. You know sharp foresight wins. This is a tested "Winner" which never fails of Success.

The Clyde is 11½ inches high, 17½ inches wide, with heavy extension base and top, heavy gilt metal handles on side with caps and feet to match; 8 day, hour strike on Cathedral Gong, half hour on cup bell; 5½ inches American fancy dial with a fancy Rococo sash. 2 columns on each side.

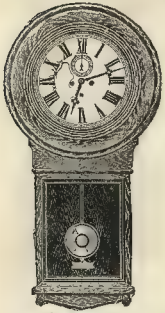
Clyde Clock (is made in Waterbury, Conn.) by one of the best known manufacturers in the Country whose product stands at the head of the best that is made in the clock line. These are finely enameled and polished wood clocks, 2 colors, plain and marbleized. They are put through a special finishing process by which the enameling is so hardened and polished that it looks just like the genuine marble.

Well posted dealers who have knowledge of clock values will immediately recognize this as one of the leaders in the clock line when the price we quote is taken in consideration. We wish to add that the manufacturer himself sells this clock for more money than we do. This is explained by the fact that we have a long standing contract for a certain large quantity that we take yearly, and while prices have generally advanced, we have kept our figures below those usually quoted. We quote this with and without a bronze ornamental "figure"— the well known "Western Scout"; very pretty in appearance and a favorite with all.

Clock each 3.60
Clock and Figure 4.20

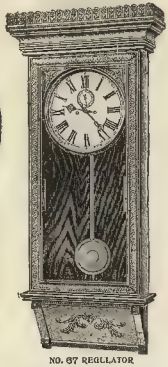
WATERBURY CLOCK CO.'S REGULATORS

PRICES EACH.



NO. 20 REGULATOR—$12.00.

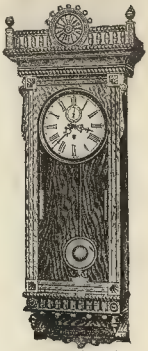
Oak, eight-day, weight, time, dead-beat escapement, retaining power, solid movement frames, 12-inch dial, height, 28 inches.



NO. 67 REGULATOR

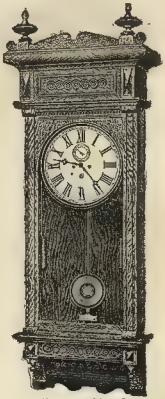
Eight-day weight, time, dead-beat escapement retaining power solid polished movement frames, 12-inch dial height 50 inches, width, 22 inches.

Oak or walnut .	$24 00
Mahogany	27 00



NO 53 REGULATOR $27 50

Quartered oak, eight-day, weight time, brass weights dead-beat escapement, retaining power solid polished movement frames 10-inch dial height, 53½ inches, width, 19½ inches.



NO. 54 REGULATOR

Eight-day, weight, time, brass weights, dead-beat escapement, retaining power, solid polished movement frames 12-inch dial height, 57 inches width, 21½ inches.

Quartered oak	$32 00
Mahogany	37 00

HALIFAX

Oak, 6-inch rococo dial, height, 23½ inches.

Eight-day, spring time .	$7 00
Eight day, spring, half- our strike, gong . .	8 50

SPRINGFIELD

Oak, 8-inch dial, height, 30½ inches, width, 10½ inches.

Eight day, spring time	$ 9 00
Eight day, spring half-hour strike, gong	10 50
Eight-day, spring, time, calendar	9 50
Eight-day, spring, half-hour strike, gong, calendar . .	11 00

WALTON

Oak, 10-inch dial, height, 41 inches, width 13½ inches.

Eight-day spring, time	$11 00
Eight-day, spring, half-hour strike gong	12 50
Eight-day spring time, calendar	11 50
Eight-day spring half-hour strike gong, calendar .	13 00

DRESDEN

Oak, 8-inch porcelain dial, Arabic figures, height, 50½ inches, width, 16½ inches.

Eight-day, spring, half-hour strike, gong	$18 25
Thirty-day, spring time . . .	18 50

NEW HAVEN CLOCK CO.'S REGULATORS

Prices Each.

MAYWOOD—Oak
Height, 43½ inches, width, 17 inches, dial, 8 inches.

8-day time	$10 90
8-day, strike, gong	12 40
8-day time, calendar	11 35
8-day, gong, calendar	12 85
30-day time	13 10

VAMOOSE—Oak
Height, 45 inches, width, 15½ inches, dial, 10 inches.

8-day time	$11 60
8-day, strike, gong	13 10
8-day time, calendar	12 05
8-day, gong, calendar	13 55
30-day time	13 80

TROJAN—Oak.
Height, 44 inches, width, 13½ inches, dial, 8 inches.

8-day time	$13 00
8-day, strike, gong	14 50
8-day time, calendar	13 45
8-day, gong, calendar	14 95
30-day time	15 20

RUTLAND—Oak.
Height, 48 inches, width, 19½ inches, dial, 10 inches.

8-day time	$14 50
8-day, strike, gong	15 00
8-day time, calendar	14 95
8-day, gong, calendar	16 45
30-day time	16 70
30-day time, calendar	19 50

COLUMBIA—Oak or Cherry.
Height, 48½ inches, width, 14½ inches, dial, 8 inches.

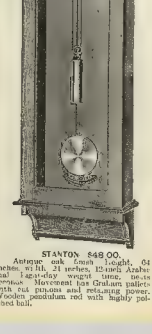
8-day time	$15 00
8-day strike, gong	16 50
8-day time, calendar	16 45
8-day, gong, calendar	16 95
30-day time	17 20

GRECIAN—Oak.
Height, 51 inches, width, 20 inches, dial, 10 inches.

8-day time	$17 50
8-day, strike, gong	19 00
8-day time, calendar	17 95
8-day, gong, calendar	19 45
30-day time	19 70
8-day time, weight movement	21 15

AUSTRIAN—Oak or Cherry.
Height, 48½ inches, width, 19 inches, dial, 10 inches.

8-day time	$17 50
8-day, strike, gong	19 00
8-day time, calendar	17 95
8-day, gong, calendar	19 45
30-day time	19 70
30-day time, calendar	22 50
8-day time, weight movement	21 15



STANTON $48.00.
Antique oak finish. Height, 64 inches, width, 21 inches, 12-inch Arabic dial. Eight-day weight time, nests seconds. Movement has Graham pallets with cut pinions and retaining power. Wooden pendulum rod with highly polished ball.

ASSORTED COLORED WAX CRAYONS IN SETS—Continued

Packages not broken

No. — Per gro. boxes

1205 "Acorn Brand" drawing crayons, fourteen assorted primary colors, 4 inches long in sliding pasteboard box, 1 dozen boxes in package . . $9 00

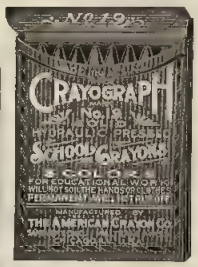
1210 "Acorn Brand," twenty-eight assorted colors, 3½ inches long, not wrapped, in round wood box, 1 dozen boxes in package . . $9 00

No. — Per gro. boxes

1041 American "Paragon," water color pencil, seven rainbow colors, wrapped in tuck flap pasteboard box, 3½ inches long, 1 dozen boxes in package . . $9 00

8 "Crayola," eight assorted colors, wrapped, in tuck flap pasteboard box, 1 dozen boxes in package $9 50

53 "Crayola," made expressly for school use, for designers, students, and for checking and general color work, permanent and waterproof, seven assorted colors, 4 inches long, wrapped, put up in tuck flap pasteboard box, 1 dozen boxes in package $10 00



No. — Per gro. boxes

711 Standard "Falcons," sixteen assorted colors, 4 inches long, wrapped, put up in tuck flap pasteboard box, 1 dozen boxes in package $10 00

19 Crayograph, eight assorted colors, 4 inches long, put up in pasteboard box, 1 dozen boxes in package $18 00

163 "The Falcon Best," fourteen assorted bright colors, 4 inches long, wrapped, with color book, in slide pasteboard box, 1 dozen boxes in package . . $18 00

75X Franklin's "Educational Drawing," paper covered, 3½ inches long, fifteen assorted colors in flat pasteboard box, 1 dozen boxes in package $17 50

No. — Per gro. boxes

330 American Enterprise, twenty-five assorted colors, 4 inches long, paper covered, in long slide pasteboard box, 1 dozen boxes in package $18 00

No. — Per gro. boxes

1042 "Pastelo," water color pencils, may be used wet or dry, twenty-one assorted colors, not wrapped, slide pasteboard box, sticks 3 inches long . . $16 80

IN WOOD

Packages not broken — Each 12 boxes in package

No. 337

No. 019

No. 176

No. — Per gro. boxes

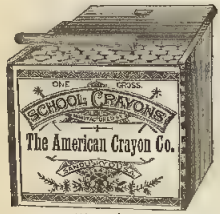
019 American Co.'s. Six 4½-inch crayons, assorted colors (in polished colored wood), flat pasteboard box $8 36

175 Lead Co.'s. Six 8½-inch crayons, assorted colors (in polished colored wood), chromo top, pasteboard box 9 00

337 Dixon Co.'s. Six 8-inch crayons, assorted colors (in polished colored wood), chromo top, pasteboard box 23 00

SCHOOL CRAYONS

REGULAR WHITE AND ASSORTED COLORED CHALK



100 gross in case.

	Per doz. boxes	Per case
White, round, Sterling brand	$2 40	$18 28
" " Empire "	2 54	19 40
" " Waltham or Sandusky	2 66	20 56
Yellow enameled, round, Sterling brand.	2 70	20 56
" " " " Waltham or Sandusky	3 00	22 86
Pink enameled round, Sterling brand	2 70	20 56
" " " Waltham or Sandusky	3 00	22 86

No. Per gro.
Assorted colors, No. 1 or first quality $1 40
" " Empire brand No. 3 88

When shipped from factory at Sandusky, Ohio, an allowance of 35 cents per case, net, will be made

SOLID COLORS

Each 1 gross in box

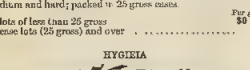
	Per gro.
Light blue, first quality	$1 40
Medium blue, first quality	1 40
Dark blue, first quality	1 40
Light green, first quality	1 40
Medium green, first quality	1 40
Purple, first quality	1 40
Dark yellow, first quality	1 40
Light " " "	1 40
Dark red first quality	1 40
Scarlet, " " "	1 40
Dark green, first quality	1 40
Light roes, second quality	1 10
Gray, second quality	1 10
Brown, second quality	1 10

THE IMPROVED MATCHLESS DUSTLESS

The Improved Matchless Dustless Crayon is free from dust, grit, grease, or soap, it makes a whiter and more distinct mark, is more easily erased than any other fine crayon manufactured, and the disagreeableness caused in handling the ordinary chalk crayon is entirely obviated. It lasts six times as long as common chalk, and is made in two grades, medium and hard; packed in 25 gross cases

Per gro.
In lots of less than 25 gross $0 42
In case lots (25 gross) and over 40

HYGIEIA



White, dustless crayon, guaranteed to contain 95 per cent pure precipitated English chalk, uniform in quality, strong, and economical

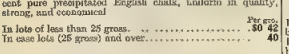
Per gro.
In lots of less than 25 gross. $0 42
In case lots (25 gross) and over. 40

AN-DU-SEPTIC DUSTLESS

Medium grade only

Per gro.
In lots of less than 25 gross $0 44
In case lots (25 gross) and over 42

ALPHA DUSTLESS



Per gro.
Medium, hard or soft $0 54
" " in case lots (25 gross) and over. 52

COLORED DUSTLESS

Per gro.
First quality, assorted colors in box of 1 gross. $2 00

SOAPSTONE CRAYON

No. Per gro.
10 Strictly dustless, length 4 inches, 1 gross in box. $3 80

IMPROVED STEATITE ANTI-DUST

1 gross in box

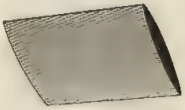
Per gro.
In less than case lots $0 74
In case lots (20 gross) and over 68
In 5-case lots (100 gross) and over. 58

BILLIARD CHALK

Each 1 gross in box

Per gro.
White $0 60
Green 2 40

"GILT EDGE" TAILORS' CRAYON



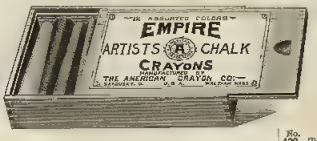
Per doz. boxes
White, in boxes of 3 dozen crayons $2 88

CHALK, ASSORTED COLORS, IN SETS

We do not break packages

No. 18

No. Per gro. boxes
16 Champion, 6 assorted colors, tuck flap box, ½ gross boxes in package. $1 80
18 American Seven Wonders, 7 assorted colors, tuck flap box, ½ gross boxes in package. 2 60

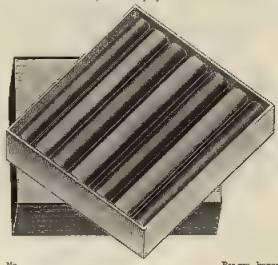


No. Per gro. boxes
730 Empire, medium grade, new shape, 12 assorted colors in sliding-cover wood box, 1 dozen boxes in package. . $3 40

CHALK, ASSORTED COLORS, IN SETS—Continued

No. Per gro. boxes
590 Sixteen bright colors, first quality, in sliding-cover wood box $2 40

No. Per gro. boxes
7W Seven bright colors, finest quality, in sliding-cover box, 2 dozen boxes in package $9 60
7P Same as No. 7W, in telescope pasteboard box 9 60



No. Per gro. boxes
25 Seven bright colors, in pasteboard box, 1 dozen boxes in package $9 00

No. Per gro. boxes
925 Improved Dustless Crayons, superior quality, 1 doz. bright colors in sliding-cover wood box, 1 dozen boxes in package . . . $18 00

No. Per gro. boxes
422 Twelve assorted colors in sliding-cover wood box, 1 dozen boxes in package. $3 40
432 Twenty-four assorted extra quality artists' colors in sliding-cover wood box, 1 dozen boxes in package. . . 16 00

WESTERN CHIEF DRILL No. 0½

Single Geared, Hand Feed

No. 0½

No. 0½. Western chief drill has hand feed only, takes bits with ½ in shanks. Capacity up to ¾ inch

Drills to center of 12 inch circle

Up and down run of table 9½ inches.

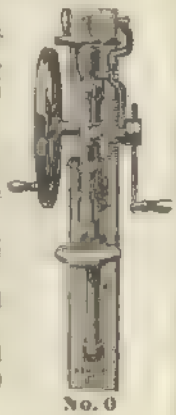
Up and down run of spindle 2¾ inches.

No. 0½. Western chief hand feed post drill.

Weight, 50 lbs. $5 50

WESTERN CHIEF DRILL No. 0

Self Feed, Changeable Speed



No. 0

No. 0. Western chief drill has self feed and changeable speed, fast and slow, takes bits with ½ inch shanks

Capacity up to ¾ inch

Drills to center of 12 inch circle

Up and down run of spindle 2¾ inches

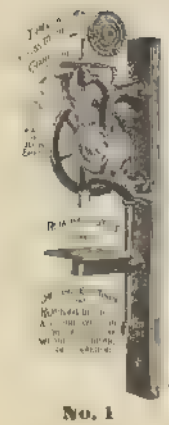
Up and down run of table 9½ inches.

Steel mandrel, shafts and feed screw, weight, 75 lbs

No. 0. Western chief self feed post drill..... .. $7.50

WESTERN CHIEF DRILL No. 1

Changeable Feed, Changeable Speed, Quick Return



No. 1

No. 1. Western chief post drill with changeable feed and speed, quick return arranged for power.

Drills to center of 15 inch circle.

Spindle bored for ½ inch straight shank bits. Bores up to 1½ inches.

Up and down run of spindle 2¼ inches.

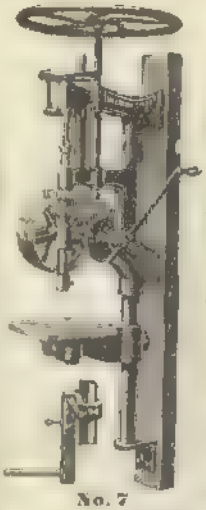
Up and down run of table 13 inches.

Weight, 130 lbs.

No. 1. Western chief post drill without power attachment $15 00

Power attachment, net extra..... . 2.00

If specially ordered, bored for ¾ inch straight shank bits



No. 7

WESTERN CHIEF DRILL No. 7

No. 7. Western chief hand or power post drill with *Cut Gears*

Automatic feed, fast and slow speed, [illegible] for [illegible] specially ordered [illegible]

Drills to center of 21 inches.

Spindle has up and down run of 5 inches. Size of pulleys for power, 10 [illegible]

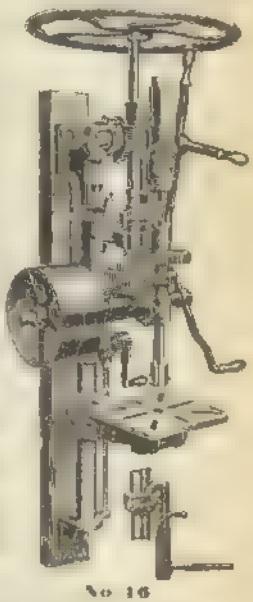
[illegible] R. P. M

Without pulleys, hand power only, weight, 27[illegible] lbs. . $33 50

With pulleys, [illegible] 2[illegible]5 lbs. 37 [illegible]

Special [illegible] Attachment, extra 2 00

WESTERN CHIEF BALL BEARING DRILL No. 16



No 16

No 16. Western chief ball bearing drill with power attachment.

Hand lever feed, also horizontal gear driven positive self feed

These feeds work independently of each other. Has *Cut Gears*.

Has rack for raising and lowering the table

Spindle bored for ½ inch shank [illegible] specially ordered

[illegible]

[illegible] center of 24 inche

Up and down run [illegible] inches, of table 15½ inches.

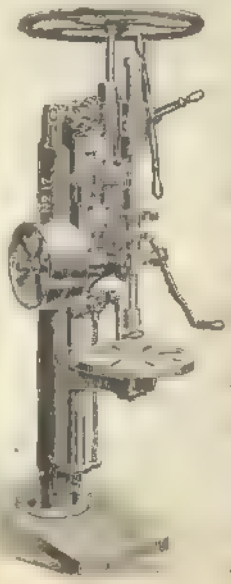
[illegible] inches

[illegible] 75 R. P. M

[illegible] $42 50

With pulleys [illegible]

Special wheel holder, extra [illegible]



No. 17

WESTERN CHIEF FLOOR DRILL No. 17

No. 17. Western chief finished floor drill, hand and pulley power

Straight and bevel cut gears

Hand lever feed, also horizontal gear driven positive self feed.

[illegible] instantly.

[illegible] dependently.

Rack for raising and lowering table

Spindle bored for ½ inch shank [illegible] or ¾ if specially ordered.

Capacity up to 1½ inches.

Up and down run of spindle [illegible] inches

[illegible] down run of table [illegible]

Floor space 15x26 inches.

Pulleys 10¾x2½ inches.

Should run 175 to 180 R. P. M.

Hand and power as illustrated, weight, 560 lbs...$65 00

Special wheel holder attachment extra 2.00

BARNES' UPRIGHT POWER DRILLS

20-inch Drill with Square Base, Power Feed and Back Geared Complete

20-INCH DRILL

Capacity, up to 1 inch in Steel and 1¼ inch in Cast Iron

Height of drill.....68 in.
Column to center of table...10⅛ "
Diameter of column..... 5½ "
" " table.....16 "
" " spindle ..... 1 5/16 "
Hole in spindle...No. 3 Morse taper
Vertical travel of table.....16 in.
" " " spindle .....10 "

Distance from spindle to base:
Round base.....43 in.
Square " .....41 "
Dist. from spindle to table...26½ "
Diam. large pulley on cone.. 8⅞ "
" small " " " .. 4 "
Cone pulleys carry 2¼ in. belt.
Tight and loose pulleys ....8x2½ "
Speed for ordinary work, 250 r. p. m.

Net weight with round base, 500 lbs.; square base, 550 lbs.

ROUND BASE DRILL

With plain lever feed.. ..$ 96 00
Wheel and " " 100 00
Power feed and automatic stop..... .... 120.00

SQUARE BASE DRILL

With plain lever feed $100.00
Wheel and " " 104.00
Power feed and automatic stop..... .... 124.00

Back gearing, additional. 24.00

All have quick return lever.

SLIDING HEAD UPRIGHT POWER DRILLS

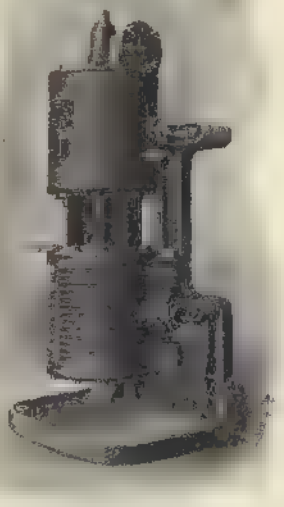
Specifications. Size of Drill..	23-inch	26-inch	28-inch	31-inch
Capacity, will drill in steel up to	1½ in.	1¼ in.	.....	.....
Height of drill	83 "	87 "	94 in.	98 in.
Distance from column to center of table.	11 3/8 "	13⅛ "	14⅛ "	15 9/16 "
Diameter of column.	6½ "	7 "	8 "	8½ "
" " table.....	19 "	22½ "	24 "	26 "
" " spindle.	1 11/16 "	1 1/16 "	1 15/16 "	2 1/16 "
Hole in spindle conforms to Morse taper	No. 3	No. 4	No. 4	No. 5
Width of column face	6½ in.	6 in.	7 in.	8 in.
Vertical travel of table....	18 "	21½ "	18½ "	17 "
" " " spindle...	12 "	12 "	15 "	15 "
Travel of sliding head.	18 "	22 "	23¼ "	25½ "
Greatest distance from spindle to base.....	52 "	54 "	55½ "	57 "
" " " " " table..	37½ "	41 "	41 "	41 "
Diameter of large pulley on cone...	10 "	10 "	12¼ "	13 "
" " small " " "	4 "	4 "	4½ "	5 "
Cone pulleys carry, belt.....	2¾ "	3 "	3 "	3 "
Diameter of crown gear.....	7⅜ "	7⅝ "	8¼ "	9¼ "
" " bevel pinion.....	3 3/16 "	4 "	4½ "	4⅝ "
Ratio of back gearing.....	4 to 1	4 to 1	4½ to 1	5 to 1
Size of tight and loose pulleys.	10 x 3 in.	10x3½ in	12x4 in.	12x4 in.
Speed of tight and loose pulleys, revolutions per minute.	250	250	200	200
Floor space required.	18x57 in.	21x65 in.	24x72 in	26x75
Weight, net lbs....	1,150	1,540	2,150	2,650
Without back gearing, plain lever feed....	$200 00	. .	. . .	. ...
" " " wheel and lever feed	210 00	. .	.. ..	.. ....
" " " power feed and automatic stop	230 00	..... .	. . .	. .....
Add for back gearing.....	30 00	.. .	.....	.....
Drills with power feed and automatic stop and back gearing..... .	260 00	$310 00	$420.00	$510.00

The 23 and 26 inch drills can also be furnished with stationary head.
Can also furnish these drills in "gangs."

WESTINGHOUSE STEAM-DRIVEN LOCOMOTIVE AIR COMPRESSORS

FOR GENERAL INDUSTRIAL PURPOSES

Compressor and Stand



Standard Compressor

Compressor as Attached to Column

The constantly increasing demand for these compressors in all classes of industrial work is, in a large measure, due to their simplicity, neatness and compactness. They are attachable to wall, column or can be mounted on floor, requiring no foundation. The fact that they are the recognized standard air compressors for railroads is, we believe, a sufficient guarantee of their reliability.

In point of design, it will be readily seen that the compressor is arranged vertically and consists of a steam and air cylinder joined together by a centerpiece. The main steam piston and air piston are both fastened to the same rod and move together as one piece. The supply and exhaust of steam to and from the steam cylinder is controlled by a distribution slide valve in conjunction with a main valve by which it is operated. The movements of the main valve are governed by a reversing valve which is actuated by the main piston. The valve motion is compact being entirely within the top head, and all its parts are so arranged as to readily permit of their examination or replacement.

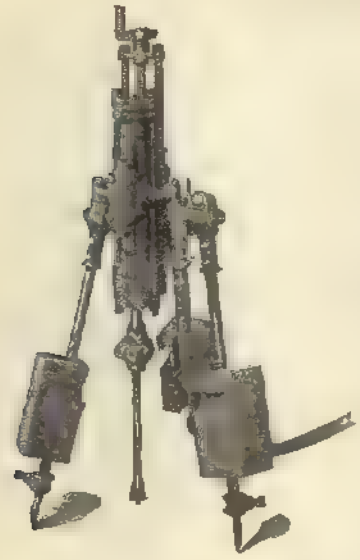
Size of Compressor	8 Inch	9½ Inch	11 Inch
Diameter of steam cylinder	8 inches	9½ inches	11 inches
" " air cylinder	8 "	9½ "	11 "
Stroke	10 "	10 "	12 "
Steam admission pipe	1 "	1 "	1 "
" exhaust "	1¼ "	1¼ "	1¼ "
Air admission "	1¼ "	1¼ "	1¼ "
" delivery pipe	1¼ "	1¼ "	1¼ "
Speed, single stroke per minute	120	120	100
Capacity, when operating under conditions of continuous service at above speed, 90 lbs. pressure	20 cu. ft	29 cu. ft.	47 cu. ft
Over all dimensions	43 x 18 x 14 in.	43 x 18 x 14½ in.	51 x 20 x 16 in
Weight, boxed for shipment	560 lbs.	630 lbs.	960 lbs
Price	$112.50	$125.00	$187.50

Also other sizes to meet special conditions of service.

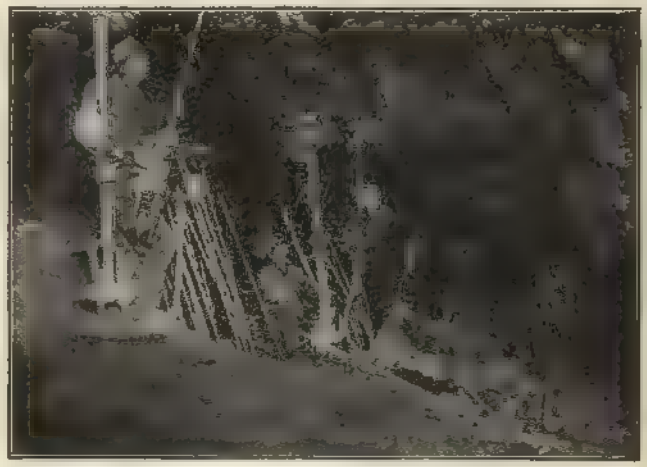
When required for continuous service at pressures exceeding 100 pounds, we can furnish them with special water-jacketed air cylinder at an additional cost.

We can also furnish, if desired, the usual necessary auxiliaries for a compressor plant, such as pump governor, steam valve, reservoirs, air gauges, reducing valves, etc.

SULLIVAN ROCK DRILLS



Mounted on Adjustable Tripod



With Mining Column

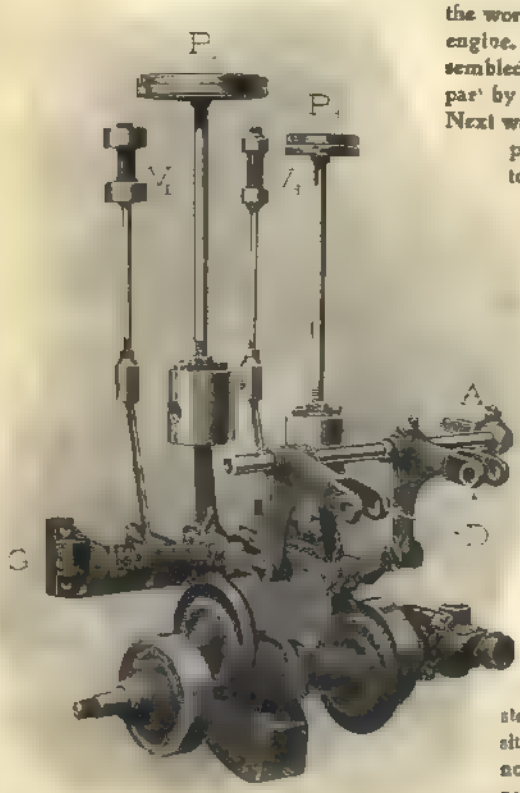
PRICES, WEIGHTS AND SPECIFICATIONS OF SULLIVAN ROCK DRILLS (Unmounted)

Letter indicating size	U A	U S	U B	U C	U C2	U D	U E2	U F2	U H	U H2	U K
Diam. of cylinder, in.	2	2¼	2½	2¾	2¾	3	3¼	3¼	3⅝	3⅝	4¼
Length of stroke, "	4½	6	5	6½	6	6½	6¼	6⅝	7⅝	7¼	8
Length of feed (depth drilled without changing steel), in.	12	15	20	24	18	24	24	24	30	24	30
Depth of hole machine will drill easily, ft. from 1 to	4	5	6	10	10	12	14	16	20	20	28
Diam. of holes that may be drilled, in.	⅝ to 1¼	⅞ to 2	1 to 2¼	1¼ to 2½	1¼ to 2½	1½ to 3	1½ to 3	1½ to 3	1½ to 4	1½ to 4	2 to 5
Diam. of drill steel, in.	¾ to ⅞	⅞ to 1	⅞ to 1	1 to 1⅛	1 to 1⅛	1⅛ to 1¼	1⅛ to 1¼	1⅛ to 1¼	1¼ to 1⅜	1¼ to 1⅜	1⅜ to 1½
Number of pieces in set of steel to drill holes to depth above stated	4	4	4	5	7	6	7	8	8	10	10
Diam. of steam inlet, in.	¾	¾	¾	1	1	1	1	1	1¼	1¼	1¼
Size of hose to connect to drill, in.	¾	¾	¾	1	1	1	1	1	1¼	1¼	1¼
Size of steam pipe to carry steam 100 to 200 ft., in.	¾	1	1	1	1	1¼	1¼	1¼	1½	1½	1½
Size of boiler to supply steam for one drill, H. P.	5	6	8	8	8	8	10	10	12	12	15
Weight of drill unmounted, lbs.	110	148	165	233	248	271	268	282	393	347	560
Shipping weight of drill, boxed, lbs.	141	188	204	273	299	319	31[illegible]	335	454	401	630
Price of drill unmounted	$200.00	$220.00	$240.00	$265.00	$265.00	$300.00	$330.00	$350.00	$430.00	$430.00	$465.00
Price of tripod with weights	30.00	40.00	50.00	50.00	50.00	55.00	55.00	55.00	60.00	60.00	60.00
Price of single screw mining column	37.00	37.00	41.00	41.00	41.00	50.00	50.00	50.00	68.00	68.00	68.00
Price of double screw mining column	45.00	45.00	50.00	50.00	50.00	60.00	60.00	60.00	80.00	80.00	80.00
Price of 50 ft. steam hose with couplings	24.10	24.10	24.10	36.35	36.35	36.35	36.35	36.35	53.35	53.35	53.35

N. B.—In ordering, state whether steam or compressed air is to be used. Drills are always supplied packed for steam, unless otherwise specified.

Prices on quarry bars, drill steels, sand pumps, B. S. tools, etc., quoted upon request.

The Simplicity of the WHITE STEAM CAR



In the accompanying illustration are shown the working parts of the 1909 White steam engine. First of all will be noted the assembled crank-shaft which we showed, part by part, in last month's advertisement. Next we call attention to the high-pressure piston, PH, and the low-pressure piston, PL. Each stroke of each piston, up or down, is a working stroke. It will thus be seen that, as regards continuous application of power, the two-cylinder White engine is equivalent to an eight-cylinder gasoline engine of the usual four-cycle type.

The valve construction of the White engine is of extreme simplicity. There is but one valve for each cylinder, VH being the valve for the high-pressure cylinder and VL the valve for the low-pressure cylinder. The valves are of the balanced type—that is, the steam pressure is the same on opposite sides. Therefore, the valves do not work against pressure and the power needed to operate them is practically nothing. The valves are driven from the connecting rods by means of levers, as shown in the illustration. The engine is reversed and the "cut-off" is altered by simply tilting the guide, G. Those who are familiar with the valve mechanism of the gasoline engine will appreciate that the White construction is by far the simpler.

Write for circular containing details of the new White cars.

THE WHITE COMPANY
CLEVELAND, OHIO

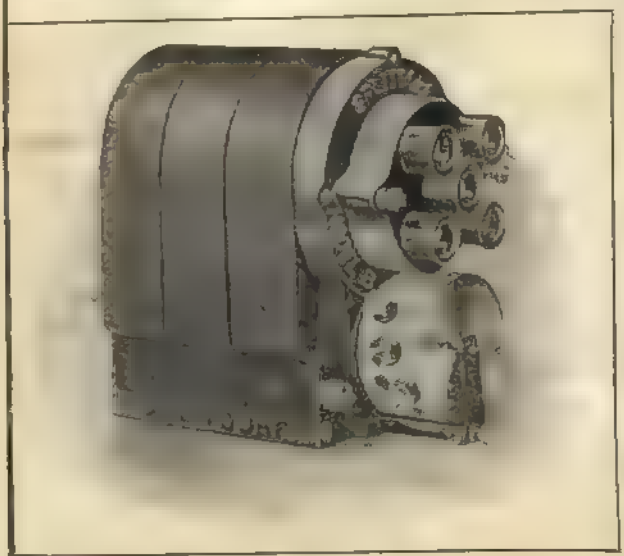
New York City, Broadway at 62d St.
Boston, 320 Newbury St.
Philadelphia, 629-33 N. Broad St.
Pittsburg, 138-148 Beatty St.
Cleveland, 407 Rockwell Ave.
Chicago, 240 Michigan Ave.
San Francisco, Market St. at Van Ness Ave.
Atlanta, 120-122 Marietta St.

There is always a good, sound, logical reason when the product of a manufacturer acquires and holds great patronage—especially so in the face of keen competition.

It proves beyond question the sterling quality of such product—it is the unmistakable seal of public approval.

For many years SPLITDORF Ignition Apparatus has held this enviable position purely by reason of superior construction, better methods and results, and perfection of details and finish, the sum of which is *satisfied patrons.*

The Splitdorf Magneto



is, in every respect, fully up to the high standard which we have always maintained.

We confidently offer it—and we know them all—as the most efficient, most compact and the Best Magneto made.

With a SPLITDORF Magneto you have a dual system of ignition—you can also start your motor on a quarter turn of the crank and throttle down to two and one-half miles an hour on the high gear—*an impossibility with any other High Tension Magneto.*

Specify it for your 1909 car. Ask for our new Magneto Catalog.

C. F. SPLITDORF

Walton Ave. and 138th St.

CHICAGO
319 Michigan Avenue

Branch, 1679 Broadway
NEW YORK

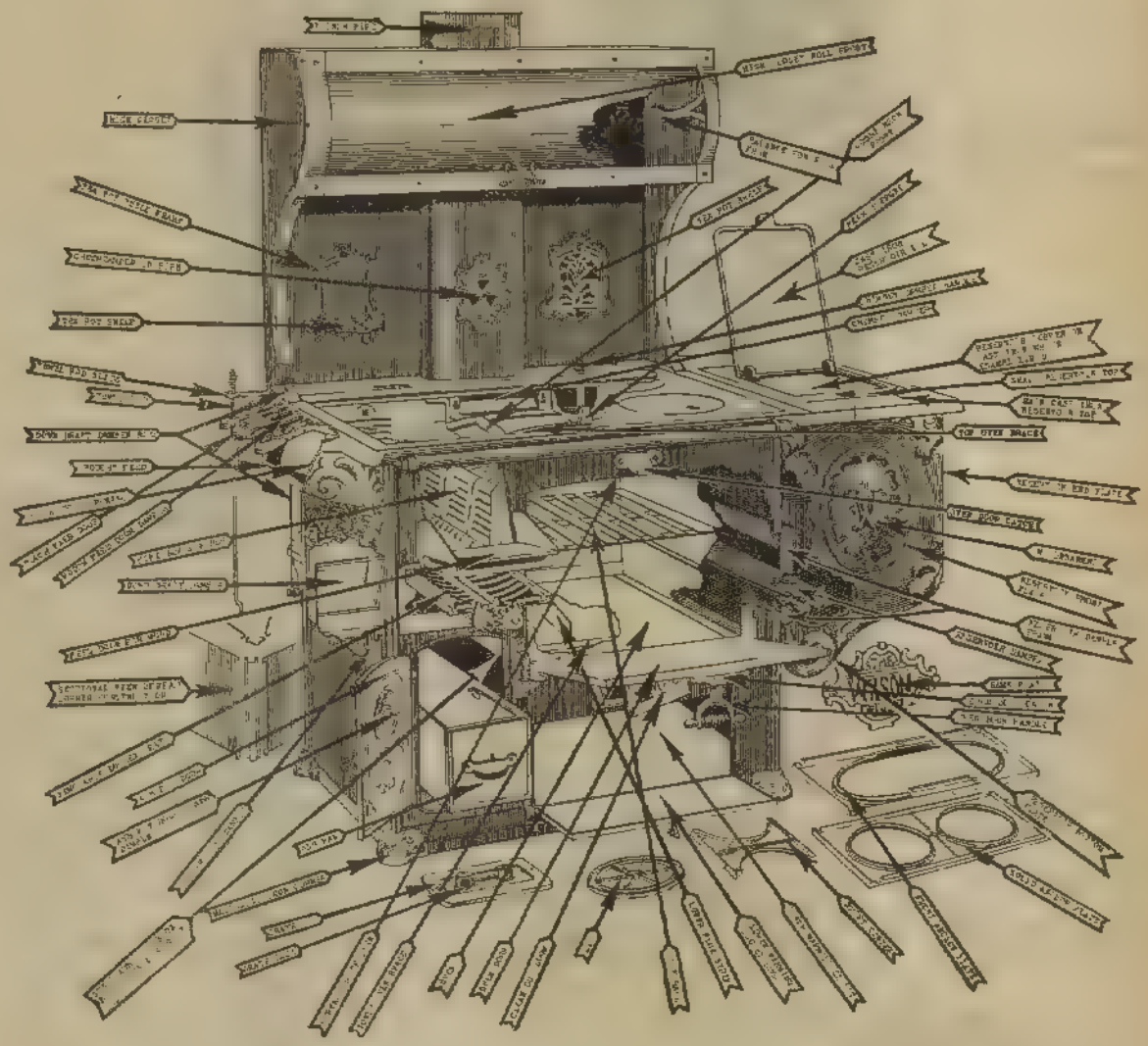
SAN FRANCISCO
520 Van Ness Avenue

TRADE MARK:
"WILSON,"
REG. U. S.
PAT. OFFICE.

WILSON'S* STEEL RANGES.

DOWN-DRAFT.

Pat. Applied for.



SEE REPAIR LIST ON PAGES 2265 to 2267 FOR NUMBERS AND PRICES ON ALL PARTS.

TRADE MARK: "WILSON," REG U S PAT. OFFICE.

WILSON'S* STEEL RANGES.

DOWN-DRAFT.
Pat. Applied for.

DOWN-DRAFT.
Pat. Applied for.

Shows Reservoir Removed, and Adjustable Damper to Regulate Heat for Heating Water, also Showing the manner of removing the Duplex Grate used in all our Wilson Ranges. It is only necessary to remove the Front Nickel Plated Plate and Grate Lock, and the Grate can be removed.

Directions for the Successful Operation of the Wilson Down-Draft Range.

TO START A FIRE, open the screw damper in the ash pit door or the sliding damper on the left end of the Range, and open the chimney damper by dropping the handle on the right side of pipe—down-draft damper must be closed.

TO CHECK THE FIRE, close the lower dampers, also the chimney damper, by raising the handle, and open check damper in the pipe.

TO HOLD FIRE OVER NIGHT, close lower dampers, and chimney damper; open the sliding damper in the door of the pouch feed and check damper in the pipe. On a Range without pouch feed, to hold the fire over night, close all dampers, except check damper in the pipe.

TO CLOSE DOWN-DRAFT DAMPER, raise small nickel plated knob on left side near back of Range.

TO CLOSE CHIMNEY DAMPER, raise handle on right side of pipe.

TO OPEN DOWN-DRAFT DAMPER, push down the small nickel plated knob on the left side near back of Range.

TO OPEN CHIMNEY DAMPER, push down the handle on the right side of pipe.

TO BAKE OR ROAST, be sure that the down-draft damper, chimney damper, check damper in pipe, and reservoir dampers are closed—this will force the heat to circulate entirely around the oven, giving an even distribution.

TO BROIL OR TOAST.—The object of the Down-Draft is to carry the gases away from the food that is being broiled. To accomplish this, close all dampers except the down-draft damper—open this by pushing the knob on left side of Range down. Place your broiler over the fire after lifting the lids and short center. The draft enters at the top of the Range and carries the smell and smoke from the food downwards into the fire with the gases, through the ash pit, out the down-draft flue and up the chimney.

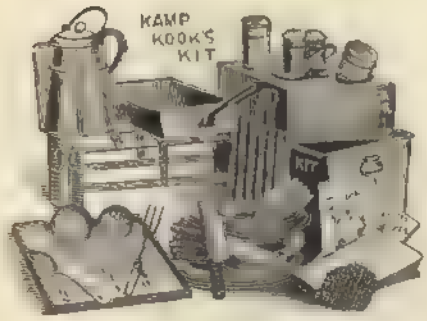
TO COOK ON TOP OF THE STOVE, such as frying meats, boiling water, etc., close the down-draft damper by raising the knob on the left side of Range. If it is not desirable to heat the oven for baking or roasting purposes, open the chimney damper, which gives a direct draft without sending the heat around the oven. If a real hot fire is wanted, open one of the lower draft dampers as well as the chimney damper. Keep the check damper in the pipe closed.

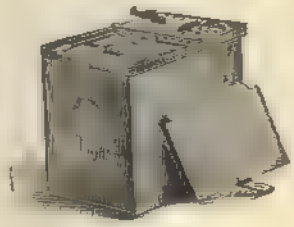
WHEN SHAKING THE GRATE, all dust that does not settle into the ash pan quickly can be removed through the down-draft flue, by opening the down-draft damper and allowing a draft to enter through the damper in the ash pan door.

ALWAYS KEEP DOWN-DRAFT DAMPER CLOSED, EXCEPT WHEN BROILING OR TOASTING.

TO HEAT WATER IN RESERVOIR, open reservoir damper.

WILSON'S KAMP KOOK'S KIT AND KAMP KOMFORT TENT HEATER





Contents of Kit

1. Wrought Iron Fire Jack, riveted, with hasp for padlock.
2. Eight-quart heavy steel combined Camp Boiler and Dish Pan.
3. Five-quart heavy steel Camp Boiler, with lifting clips, riveted.
4. Heavy Tin Cover, Nos. fits 2, 3 and 5.
5. Combined Frying and Baking Pan, riveted clip and ring.
6. Adjustable wrought Handle for Nos 3 and 7.
7. Three-quart Solid Lip IX Coffee Pot, riveted handle and bail.
8. Heavy Retinned Corrugated Folding Wire Broiler and Toaster.

9 and 10. Heavy Wrought Retinned Ladles 3½-inch solid and pierced.
11 and 12. Heavy Retinned Cake Turner and Basting Spoon.
13 and 14. Three-tined Retinned Flesh Fork and Can Opener.
15 and 16. Large Wire Ring Pot Cleaner and Dish Towel.
17, 18, 19 and 20. Match Box, Flour Dredge, Salt and Pepper Boxes.
21. Eldnac (candle) Lantern, frame for No. 2 Fluted Chimney.

Tableware

33 pieces; will pack inside "Kamp Kook's Kit."

Six each steel Knives and Forks.
Six silver finish embossed heavy Tea Spoons and two Table Spoons.
Six heavy retinned open-handle Cups and six Tin Plates.
One Butcher Knife, redwood handle, in copper-riveted leather case.

Kit and Tableware (54 pieces)	$9.00
Kamp Kook's Kit (21 pieces)	7.00
Tableware (33 pieces)	3.00
Kamp Komfort Tent Heater	6.50

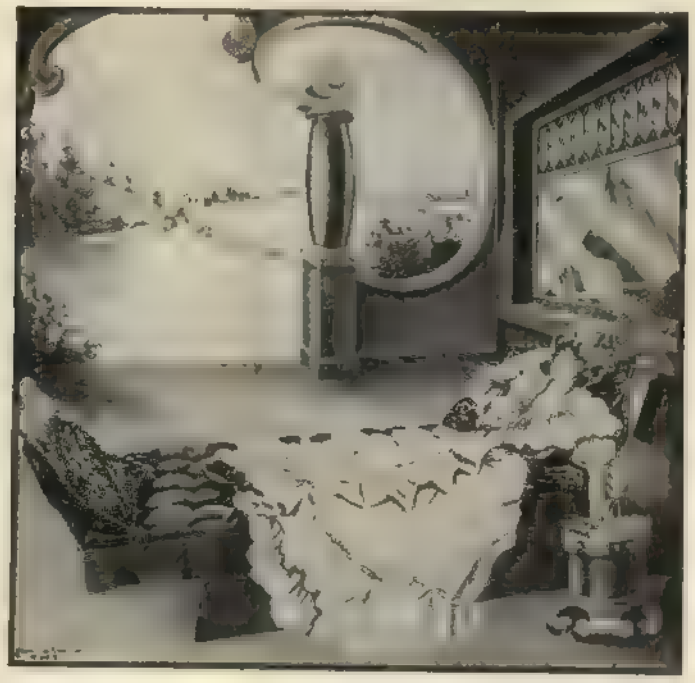
Nos. 2 and 4, or 3 and 4 form a bake oven for bread, biscuits, cake, etc. Nos. 2 and 3 form a large roasting oven for fowl, joints, roasts, etc. No. 3 covers the lid opening in the Heater.

Any good practical camp cook will know how to use all the furniture.

Materials and workmanship are first class; 26-gauge smooth steel in boilers; cemented seams; no solder required to hold any parts together.

A padlock makes the entire Kit, including Tableware, secure for shipment. The handle on the large boiler is in convenient position for carrying when packed.

"DREAMLAND" HAMMOCK COUCH



Scientifically combines all the points of excellence found in both the hammock and couch. Add to this a delightful swaying sensation, fine upholstering, a construction which permits of self-conformation to every curve of the body without any unnatural position—and you have a hammock which is irresistibly inviting for either a calm refreshing sleep or restful lounging.

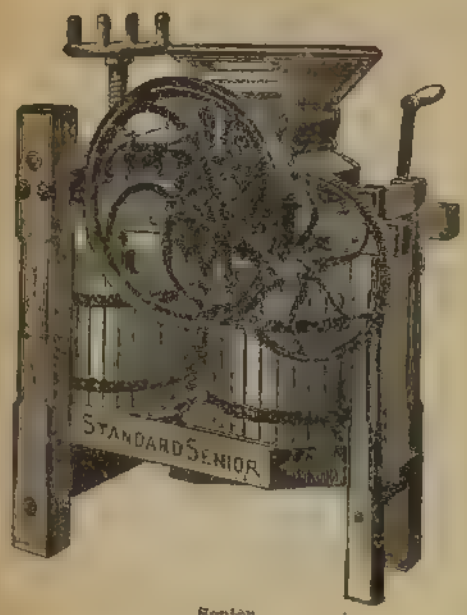
Not one thing has been neglected in material or design in making this the most practical and serviceable hammock ever made. Any location can be used in erecting—either a porch, tent, trees or chamber—can be utilized with equal convenience. There are just two ropes, and when attached they support the weight perfectly, and give the hammock a slight swaying motion without personal effort which is soothing and restful.

The hammock proper is an ingenious and simple frame made of hardwood side rails with iron turnbuckles at each end. These turnbuckles give the canvas the proper tension and elasticity, and can be tightened or loosened at will. When taken out the whole hammock rolls up into a very light, compact bundle for storage or transportation. The canvas is extra heavy and double thickness. It is one single piece without seams of any kind and to make it extremely strong and serviceable it is doubly reinforced on the sides at the ends and through the entire length of the bottom. This is the strongest construction ever put into a canvas hammock. It will never sag, never tear, never overturn. There are no seams to come loose—no eyelets to tear out, no lacings to break, nothing to get out of order. It is amply strong to support half a dozen people without strain, is practically indestructible and ready as the most economical hammock one can buy.

The upholstering is furnished regularly in green or red denim filled with wool. This fits snugly on the frame and is removable at will. It has a natural softness and will remain smooth and inviting for years. We do not use springs of any kind as they are not practical for hammocks. A mosquito bar frame of bobbinett adds much to the value of this hammock by absolutely excluding insects which are so troublesome.

Price of plain hammock with ropes all ready for hanging, but without mattress or mosquito bar frame, $18.00
Extra for mattress of green or red denim 7.50
Extra for mosquito bar of bobbinett 2.00

CIDER AND WINE MILLS.



Senior.

Medium.

Junior.

STANDARD.

Varnished Hardwood Securely Bolted Frame, Bottom Trough Removable Hopper and Lever, Black and Red Striped, Cast Iron Yoke, Balance Wheel and Journals, Steel Press Screw, with Cast Socket and Top Wheel, Japanned with Hand Grips; Steel Shafts, Cast Iron Roll Casting Painted Red with One Plain and Two Corrugated Adjustable Rolls Triple Geared, Cast Iron, Japanned Cranks with Wood Handles; Two Plain Hardwood Removable Tubs with Heavy Staves, Riveted to ⅛ inch Thick Japanned Wrought Iron Bands Two Octagon Sliding Hardwood Base Boards and Hardwood Heavy Plunger Boards, Plain Finish, Complete with Malleable Wrench

	Senior	Medium	Junior
Height over all, inches	48	49	43
Inside Dimensions of Trough, inches	19½x20¼	14½x29½	12½x28½
Inside Dimensions of Tubs, inches	15½	12	10½
Dimensions of Press Screw, inches	22x2	20½x1½	18½x1⅛
Length of Lever, inches	40	30	29
Dimensions of Hopper, inches	13x15	14x14	13x14
Floor Space Required, inches	29x45	22x35	20x34
Weight each about, lbs	420	238	190
Each	$30.00	24.00	18.00

Family.

Varnished Hardwood Braced and Bolted Uprights, Double Braced Bottom Board 16x20 inches, and Lever, 22¼ inches Long Cast Iron Hopper 10x7½ inches, Studded Revolving Disc 7¾ inches in Diameter and Roll Casing, Painted Red; Cast Iron Balance Wheel, Japanned, 18¼ inches in Diameter, with 5 inch Hardwood Handle; ¾ inch Steel Shaft Steel Press Screw 27x1¼ inches, with Cast Thread Boxing and Lever Socket Hardwood Plunger Board, work on a Plain Hardwood Removable Tub 12½ inches inside Diameter, with Heavy Staves, Riveted to ⅛ inch Thick Japanned Wrought Iron Bands.

Family—Height over all 42 inches; Uprights 28 inches Long 5x1⅛ inches at Bottom, 4¼x1½ inches at Top. Floor Standards 2x2½x2½ inches Spread 18 inches, Weight each about 110 lbs. ..... Each $15.00

Packed Loose.

TRADE MARK: "WONDER," REGISTERED

‡CANE MILLS.

‡Wonder*.

DIRECTIONS FOR OPERATING CANE MILLS.

In order to successfully operate a Cane Mill IT MUST BE RIGIDLY SECURED IN POSITION, PROPERLY ADJUSTED, OILED FREELY, BOLTS KEPT TIGHT, AND FED REGULARLY.

1. The Mill MUST BE LEVEL AND RIGID. To secure it in position, posts six feet long set three feet in the ground and thoroughly braced.

2. TO SECURE PROPER ADJUSTMENT. Adjust the rolls parallel to each other, the feed-roll from one-quarter to one-half inch from the main roll; the other should slightly touch the main roll when empty; after trial, the proper adjustment can be made. Do not try to force the set-screws up when there is cane in the mill.

3. OIL REGULARLY AND FREELY. The vertical mills have oil tubes passing down through the rolls, and by using FLUID LARD OIL FREELY on the upper journals the oil flows to the lower journals; see that these tubes are kept open, and that the oil is applied regularly and freely. NEVER USE MINERAL OILS ON A CANE MILL.

4. FEED EVENLY AND CONSTANTLY. Regular feeding is necessary in order to get the best results. When all the space of the rolls is properly filled with cane a greater per cent of the juice is extracted than when there are unfilled spaces, or spaces only partially filled. Use the Feed-Box, and in addition place a board about three feet long on a level with the bottom plate, to rest the cane on as it enters the mill; feed butts foremost.

5. KEEP ALL THE BOLTS SCREWED UP TIGHT. Owing to the constant wrenching of the mill the stay bolts are liable to become loosened.

The circle where the horse walks should be level, the sweep 12 to 13 feet from the center of the mill and extend beyond, to partially balance.

Horse-Power: Three Roll Vertical Pattern. Painted Blue, Striped and Varnished. Heavy Cast Iron Frame, Top and Bottom Plates. Double Slanting Flanged Sweep Cap and Shaft Boxes, Painted, Extra Braced. One Large and Two Small Cast Iron Turned Serrated Face Rolls, Oiled, Geared, with Heavy Turned Steel Shaft running in Adjustable Brass Bearings; Main Roll Flanged at Top and Bottom, preventing the Cane from passing up or down, Encased Non-Clogging Gearing. Frame Bolted through at Corners by Four Heavy Steel Bolts. Double Compartment Side Feed Guide placed to use the full length of the Roller. Top Shaft Boxes have Hinged Sliding Cover, removable for Oiling or Cleaning. Each Mill complete as shown in Cut, without Sweeps, but with Oil Can, Wrench and Extra Bolts with Washers for Bolting Down the Flanged Base.

WONDER*.

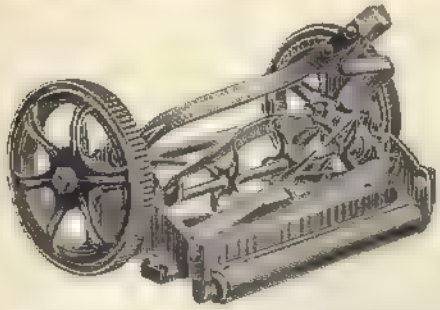
	Each
‡No. W 0 LIGHT, ONE HORSE. Estimated Capacity 40 Gallons per hour; Height of Frame 17 Inches, Over all 25½ inches; Extreme Length 22¾ inches; Width 20¼ inches. Main Shaft 2⅛ inches in Diameter, with Sweep Cap 17 inches Long; Main Roll 10⅛ inches in Diameter, Small Rolls 6⅛ inches in Diameter; all Rolls 5½ inches Long. Weight each about 430 lbs.	$30.00
‡No. W1—ONE-HORSE. Estimated Capacity 60 Gallons per hour; Height of Frame 1[illegible]½ inches, Over all 27½ inches, Extreme Length 25 inches; Width 22½ inches; Main Shaft 2⅞ inches in Diameter, with Sweep-Cap 11⅝ inches Long; Main Roll 11⅜ inches in Diameter; Small Rolls 6¾ inches in Diameter, All Rolls 6⅝ inches Long. Weight each about 640 lbs.	40.00
‡No. W2—LIGHT, TWO-HORSE; Estimated Capacity 80 Gallons per hour, Height of Frame 20½ inches, Over all 32 inches; Extreme Length 28 inches; Width 24½ inches. Main Shaft 2¾ inches in Diameter, with Sweep-Cap 20¾ inches Long; Main Roll 13½ inches in Diameter; Small Rolls 7⅝ inches in Diameter, All Rolls 7½ inches Long. Weight each about 750 lbs.	60.00
‡No. W3—TWO HORSE. Estimated Capacity 100 Gallons per hour, Height of Frame 23 inches, Over all 34¼ inches. Extreme Length 30 inches. Width 28¼ inches. Main Shaft 2¾ inches in Diameter, with Sweep-Cap 24¼ inches Long. Main Roll 14⅜ inches in Diameter; Small Rolls 8 inches in Diameter, All Rolls 9¼ inches Long; Weight each about 980 lbs.	80.00
‡No. W4—HEAVY TWO-HORSE. Estimated Capacity 120 Gallons per hour; Height of Frame 26½ inches, Over all 40 inches, Extreme Length 31½ inches, Width 33 inches. Main Shaft 3 inches in Diameter, with Sweep-Cap 22¼ inches Long. Main Roll 16 inches in Diameter; Small Rolls 9⅝ inches in Diameter, All Rolls 12 inches Long. Weight each about 1300 lbs.	100.00

Shipped Loose; Knocked Down.

‡Goods marked thus (‡) are not carried in stock and can only be furnished by shipment direct from factory.

W. & B. HIGH GRADE LAWN MOWERS

THE NEW DIAMOND LAWN MOWER



A mower of great strength and durability fitted with self aligning and adjusting phosphor bronze reel shaft bearings. The reel is adjustable to the cutter and held firmly by reel locking device.

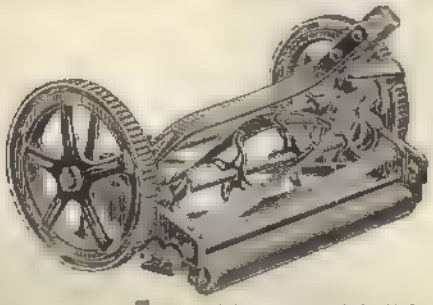
The wheels turn on a polished steel spindle which with their great height reduces draft to a minimum. The ratchet, the strongest made, is simple and positive in action. All working parts are incased and thoroughly protected from dust.

Adjustable reel 5¾ inches in diameter, four blades, wheels 10 inches in diameter.

This machine is fully guaranteed against defects in material and workmanship and to do first class work.

Sizes, inches	16	18	20
Price, each	$9.50	10.00	10.50

THE JUNIOR BALL BEARING LAWN MOWER



This mower is fitted with patented ball bearing adjustment, the simplest and most effective made and the highest quality steel balls, cups and cones, uniformly hardened, accurately ground and dust proof. The frame is strong and rigid and all working parts are incased to protect them from dust.

This mower is built of high grade material throughout and is exceptionally light draft. Reel 5¾ inches in diameter, 4 blades. Wheels 10 inches in diameter.

Sizes, inches	14	16	18	20
Price, each	$9.50	10.50	11.50	12.50

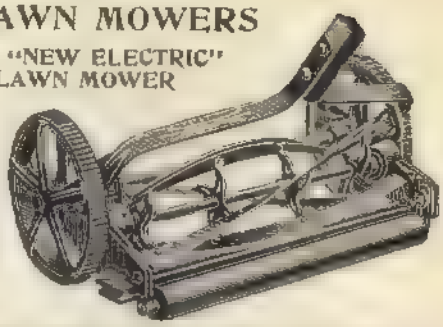
THE W. & B. JUNIOR LAWN MOWER

This mower is built on the same lines as the W. & B. Junior Ball Bearing except that it is fitted with self aligning adjustable reel shaft bearings.

This machine is fully guaranteed and is very easy running.

Sizes, inches	14	16	18	20
Price, each	$8.00	8.50	9.00	9.50

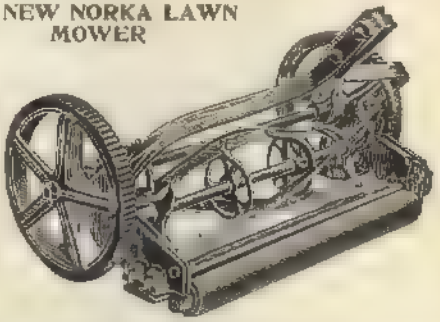
THE "NEW ELECTRIC" LAWN MOWER



This machine is fitted with self aligning adjustable parallel bearings. The reel shaft is of cold rolled steel and the reel knives are from the best grade knife steel perfectly ground. All working parts are thoroughly incased to protect them from dirt. The frame is strong and rigid. We recommend this mower to trade desiring a good, serviceable, light running machine at a moderate price. Reel 5¼ inches in diameter, 4 blades. Wheels 9 inches in diameter.

Sizes, inches	14	16	18
Price, each	$5.80	6.10	6.50

THE NEW NORKA LAWN MOWER



This is a low-priced mower but not a cheap machine. The reel runs in self aligning, adjustable parallel bearing. It is built of first class material throughout, strong and well finished. The wheels are large and run on a polished steel spindle. The ratchet button is cast solid with the pinion and is one of the strongest and simplest made. We warrant this mower against defect in material and workmanship. Reel 5¼ inches in diameter, 3 blades. Wheel 9 inches in diameter.

Sizes, inches	14	16	18
Price, each	$4.90	5.10	5.40

CARROLL ADJUSTABLE GRASS CATCHER

Can be easily removed for emptying—the spring in the forward hole holds the catcher securely to the mower. To remove the catcher it is only necessary to spread the forward end.

	Dozen	Each
No. 1. Fits 12 to 18 in., inclusive	$10.00	$1.00
No. 20. Fits 18 to 20 in. inclusive	13.00	1.25

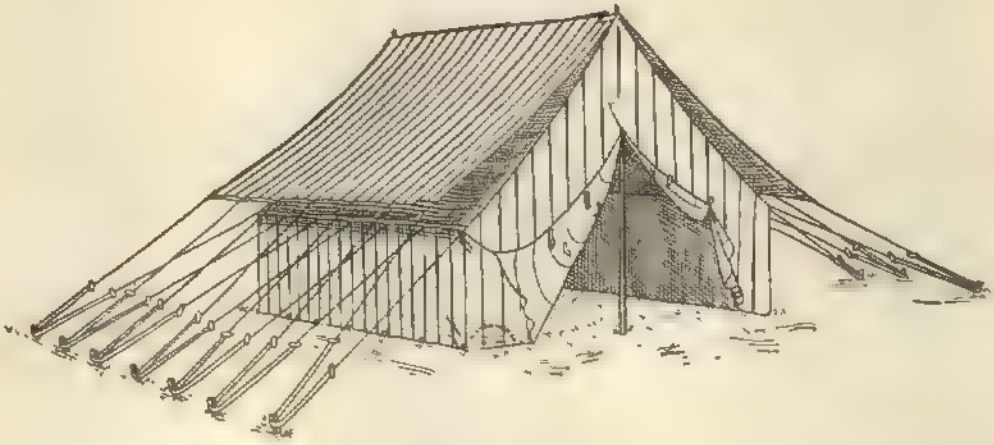
IRON CLAD ADJUSTABLE GRASS CATCHER

Is made of bright striped canvas with galvanized iron bottom. This combines lightness with durability and is especially designed for trade that wants the best.

No. 1. For all mowers 18 inches and smaller. Price per dozen . $20.00, ea. $2.00

No. 2. For all mowers 18 to 20 inches. Price per dozen ..... 23.50, " 2.35

WALL TENTS



The above cut shows tents with flies.

Prices given below are for tents complete with poles and pins, but without flies. Flies are listed at 50 per cent of tents of corresponding sizes.

Size, Feet	Height of Pole, Feet	Height of Wall, Feet.	8-oz. Duck, Single Filling.	10-oz. Duck, Single Filling.	12-oz. Duck, Single Filling.	10-oz. Duck Double and Twisted Filling or 8-oz Army Duck	12-oz. Duck, Double and Twisted Filling or 10-oz. Army Duck	12-oz. Army Duck or No. 10.	15-oz. Army Duck or No. 8.
7 x 7	[illegible]	3	$ 8.00	$ 9.35	$11.22	$ 10.35	$ 12.25	$ 14.55	$ 17.50
7 x 9	7	3	9.50	11.05	13.26	12.30	14.60	17.50	20.90
9 x 9	7½	3	10.95	12.80	15.36	14.30	17.00	20.30	24.50
9½ x 12	7½	3	12.90	15.05	18.06	16.80	19.95	23.80	28.70
9½ x 14	7½	3	14.65	17.10	20.52	19.10	22.65	27.05	32.55
12 x 12	8	3½	15.30	17.95	21.54	20.00	23.75	28.40	34.25
12 x 14	8	3½	17.30	20.20	24.24	22.55	26.80	32.05	38.60
12 x 16	8	3½	19.20	22.45	26.94	25.05	29.80	35.65	43.00
12 x 18	8	3½	21.35	24.95	29.94	27.80	33.00	39.45	47.50
14 x 14	9	4	20.60	24.15	28.98	26.95	32.10	38.45	46.45
14 x 16	9	4	22.70	26.65	31.98	29.80	35.50	42.55	51.35
14 x 18	9	4	25.35	29.75	35.70	33.20	39.45	47.30	57.10
14 x 20	9	4	28.20	32.75	39.30	36.40	43.00	51.15	61.40
14 x 24	9	4	31.80	36.90	44.28	41.00	48.10	57.25	68.75
16 x 16	11	5	28.20	33.20	39.84	37.15	44.10	53.05	64.25
16 x 18	11	5	30.95	36.40	43.68	40.75	48.25	58.00	70.20
16 x 20	11	5	34.10	39.80	47.76	44.30	52.15	62.30	77.00
16 x 24	11	5	38.85	45.20	54.24	50.25	59.05	70.40	84.65
16 x 30	11	5	47.00	54.75	65.70	60.85	71.50	85.30	102.60
16 x 45	11	5	52.60	61.30	73.56	68.10	80.20	95.60	114.95
18 x 18	11	5	35.40	41.60	49.92	46.15	55.20	66.20	79.95
18 x 20	11	5	39.00	45.45	54.54	50.50	59.70	71.10	85.45
18 x 24	11	5	43.60	50.85	61.02	56.50	66.50	79.25	95.25
18 x 30	11	5	52.25	60.90	73.08	67.75	79.95	95.35	114.65
18 x 35	11	5	58.15	67.80	81.36	75.40	89.05	106.25	127.75
18 x 40	11	5	68.40	78.55	94.26	88.65	105.15	125.40	152.00
20 x 24	11	5	45.85	52.65	63.18	59.45	70.50	84.05	101.90

These prices are figured on pole ridges.

Rope ridges can be furnished at a small additional cost.

Should poles not be desired a discount of 5 per cent may be taken from the above list prices. Should higher walls be desired than specified in the list above 5 per cent for each additional foot or fraction thereof must be added.

Wall Tents Roped, see next page.

YACHT ENSIGNS

Made of the Best Wool Bunting, with 13 Stars and Anchor Sewed on Each Union

Length, Feet	Width, Feet	Price Each
3	2	$1 70
4	2½	2 20
5	3	2 50
6	4	3 70
7	4	4 00
8	5	5 [illegible]

UNITED STATES PENNANTS

Made of the Best Wool Bunting, with 13 Stars Sewed on Each Union

Length, Feet	Price Each, 6 Inches at Head	Price Each, 9 Inches at Head	Price Each, 12 Inches at Head	Price Each, 18 Inches at Head
8	$1 60	$1 80		
10	2 [illegible]	2 3[illegible]	$2 00	$4 20
15	2 50	2 [illegible]	4 35	5 20
20	3 00	3 [illegible]	4 [illegible]	6 00
25	3 30	3 60	5 [illegible]	6 60
30	3.50	3 80	5.50	7 20

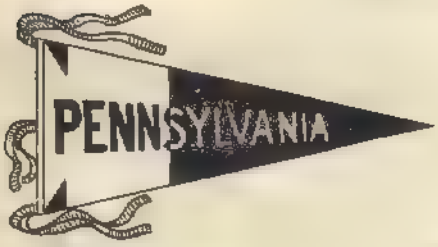
UNION JACKS

Made of the Best Wool Bunting, with a Full Complement of Stars

Length Feet	Width, Feet	Price Each	Length Feet	Width, Feet	Price Each
3	2	$1 60	8	6	$ 6.80
4	3	2.50	10	8	10.00
5	4	3.00	12	9	12.50
6	4½	3 80	15	12	20.00

CHANNON FELT PENNANTS

Satin Ribbon Trimmings



No. 1

No. 2

No. 3

Size	Each	Doz
10x24	$0 70	$ 7.00
12x27	.90	9.00
12x36	1.00	10.00
18x30	1.25	12.00
24x48	2.00	20.00

No. 4

For Designs Nos. 1 and 4 Add $1.00 per Doz. Net

We Make Any Design and Combination of Colors to Order

FOREIGN FLAGS

Printed Muslin. Mounted on Sticks

GERMANY, FRANCE AND IRELAND

Number.	Size. Inches.	Price Per Gross.	Number.	Size. Inches.	Price Per Gross.
4	4½ x 7½	$0.90	8	18 x 27	$10.00
5½	7 x 10½	2.10	9	22 x 36	16.50
6	9 x 14	3.20	10	27 x 43	26 00
7	12 x 18	4.60	11	30 x 50	32.00
8A	14 x 24	8.00	11½	35 x 56	38.00

GREAT BRITAIN

Number.	Size, Inches.	Jacks Only. Price Per Gross.	Number	Size, Inches	Jacks Only. Price Per Gross.	Merchant. Flag. Price Per Gross.
2	2½ x 4	$0.75	6	9 x 14	$ 4.00	$ 4.00
3	3½ x 6	1.00	7	12 x 18	6.00	6.00
4	4½ x 7½	1.25	7½	14 x 22	9.60	.....
5	5¾ x 4½	2.15	8	18 x 27½	13.00	13 00
5½	7 x 10½	2 50	9	22 x 36	20.00	20.00

CANADA

Length, Inches	Price Per Gross	Length, Inches.	Price Per Gross.
14	$4.50	36	$22.00

ITALY

Number.	Size, Inches.	Price Per Gross	Number.	Size, Inches.	Price Per Gross.
7	12 x 18	$ 6.00	9	22 x 36	$19.00
8	18 x 27	12.00	10	27 x 43	28.00

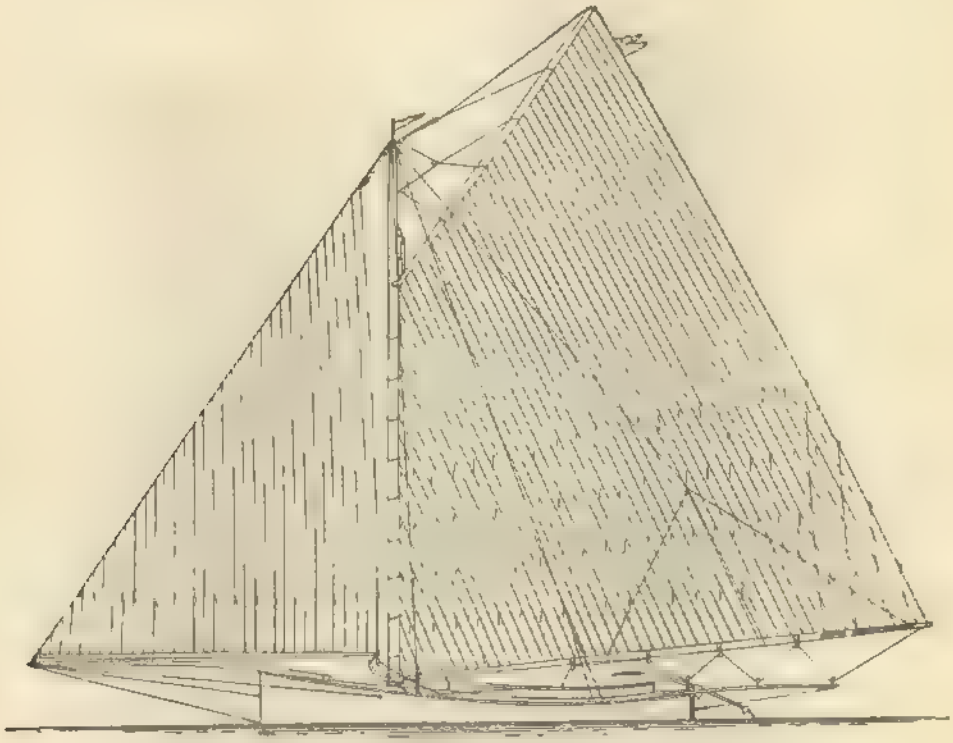
FOREIGN FLAGS IN SETS

Printed Muslin. Mounted on Sticks

Length. Inches.	In Sets of Twelve, Price Per Set.	In Sets of Twenty-Four, Price Per Set.	In Sets of Forty-Two, Price Per Set.
10	$0.30	....	....
15	.40	....	....
18	.52	$1.00	....
23	1.20	2.40	$6.00
36	1.50	3.00	8.00

We can furnish Printed Muslin Flags of any nation, and will take pleasure in quoting prices at all times.

YACHT SAILS



For Cat Boats, Sloops, Yawls, Schooners, Canoes or Ice Boats

INSTRUCTIONS FOR SAIL MEASURING

If your boat or yacht is already sparred send us the exact length of her masts, booms and gaffs, together with the following measurements:

The distance from bowsprit end to mast.
The distance from stem to mast.
The distance from goose neck or saddle to throat halyard block
The distance from saddle or goose neck to deck
The distance from throat to clew, called the "diagonal."
The length of each jib stay

We will send a sail plan upon request

We will guarantee every sail we send out to fit. Send your draft and we will submit samples and prices. We have many different qualities of sail cloth, made especially for yacht sails. They are all close and very suitable for the purpose intended. Sail covers made any size of white or brown waterproof canvas

OARS.

SELECTED WHITE ASH.

Length, Feet	Ash, Price Per Foot.	Copper Tipped, Price Per Foot.	Extra for Leathering, Price Per Pair.
6 to 12	$0.16	$0.17	$1.00
13 to 16	.20	.21	1.00

Longer oars on application.

SPRUCE.

Length, Feet	Pair, Price Per Foot	Copper Tipped, Price Per Foot	Extra for Leathering, Price Per Pair
6 to 10	$0.20	$0.21	$1.00

Extra for Varnishing, 25c

SPRUCE SPOON SCULLS.

These Sculls are made of Selected White Spruce, Leathered, Varnished and Copper Tipped.

Length, Feet.	Price Per Pair.	Length, Feet.	Price Per Pair.
6, 6½ and 7	$5.60	8½ and 9	$7.20
7½ and 8	6.40	9¼ and 10	8.00

SPRUCE RACING SCULLS.

Made of the finest Spruce obtainable and each pair matched in weight.

Length, Feet.	Width of Blade, Inches.	Horizontal, Inches from Front of Handle	Price Per Pair
9½	Scant 7	32	$10.00

SINGLE PADDLES. Straight Blades.

All hand made of either Ash, Maple or Spruce; varnished and copper tipped where tips are necessary Maple paddles not tipped, better without. Price, each, $2.50.

DOUBLE JOINTED SPRUCE PADDLES. Straight Blades.

All hand made, copper tipped, varnished and jointed.

Spruce, spoon blade. Each ..... $8.00 | Spruce, straight blade. Each.....$7.00

PUSH PADDLES.

Ash and Spruce. Copper Tipped.

Length, feet, 9. Price, each..... $2.70
" " 10. " " 3.00

TENT POLES. (Ironed.)

Length, Feet.	Diameter, Inches	Price Per Hundred	Length, Feet.	Diameter, Inches.	Price Per Hundred.
6	1¾		8	1¾	
7	1¾		10	1¾	
7½	1¾		10	2	

TENT KEYS AND RIDGES.

Prices on application.

LETTER BOXES.

Each

No. 2—12x5¾x2¾ inches; Cast Iron, Black Japanned; Cast Iron Drop, Wire Spring on Front for holding Papers; Fitted with Hasp and Staple for Padlock; Weight each about 3 lbs. $1.60

Each

No. 1—12x5¾x2¾ inches, Cast Iron, Black Japanned Cast Iron Drop; Fitted with Hasp and Staple for Padlock; Weight each about 3 lbs. $1.00

Packed Loose.

Each

No. 66—8⅝x5x3¼ inches; 24 Gauge Galvanized Steel, Maroon Enameled, with Aluminum Finish on Hinged Front; Fitted with Hasp and Staple for Padlock; Wire Support on Top of Box for holding Papers, etc.; Weight per dozen about 18 lbs. $0.75

MATCH SAFES.

POCKET.

Sold only in Complete Assortments.

Per Assortment

No. 1069—"RECORD BREAKER" ASSORTMENT; Aluminum; Assorted Finishes; Black Japanned Centers and Aluminum Tips; Fancy Engraved Patterns. Size of Safe 2⅞x1½ inches. Size Card 12x[illegible] inches, Weight per dozen about 1½ lbs. $6.00

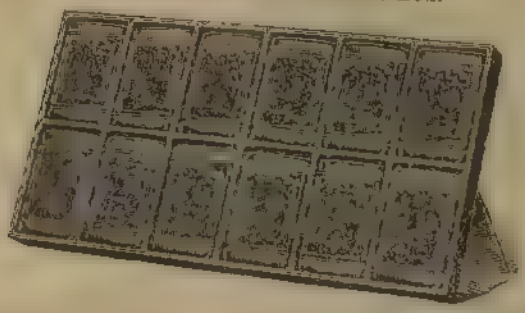
One Dozen on an Easel Back Card.

One Card in a Cardboard Box.

Per Assortment

No. 225—ASSORTED Designs; Steel, Nickel Plated; Embossed Brass Oxidized Silver Finish Side Plates, Clinched to Body; Spring Cover; Size 1½x2¾ inches; Weight per dozen about 1¼ lbs. $7.00

One Dozen in a Cardboard Box.



Per Assortment

No. 296—ASSORTED, Raised Designs, Tin Gun Metal Finish, Nickel Plated Edges, Spring Cover; Size 1⅜x2½ inches; Weight per dozen about 1 lb. $5.50

One Dozen in an Easel Box

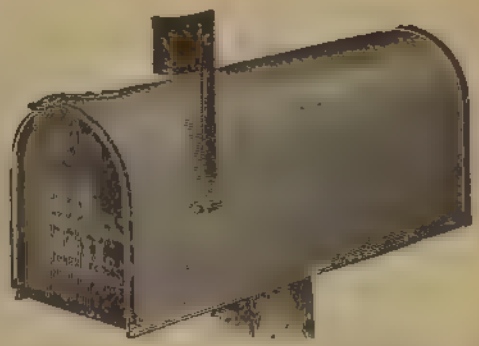
RURAL MAIL BOXES.

Each

No. 201—18¾x9½x6½ INCHES; 22 Gauge Galvanized Steel, with Inner Galvanized Box, furnished with Padlock as shown in cut; Red Signal, raised by mail carrier to show that he has deposited mail in the Box; Weight per dozen about 96 lbs..... $2.50

The lower division of Box is designed for newspapers packages, etc.; The Door has a Receptacle for the Deposit of Out-Going Mail, which the carrier can get without [illegible] his gloves; The Door extends into the Box [illegible] making the Box absolutely snow and [illegible] a board in Bottom of Box it can be set [illegible] on a post

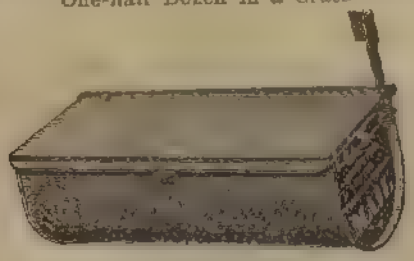
One-half Dozen in a Crate



Each

No. 202—18¾x7½x6½ INCHES; 22 Gauge Galvanized Steel, without Inner Galvanized Box; Red Signal, raised by mail carrier to show that he has deposited mail in the Box; Weight per dozen about 72 lbs $1.75

One-half Dozen in a Crate.



Each

No. 204—19x6¼x6¼ INCHES; 20 Gauge Galvanized Steel; Positive Locking Red Signal; Heavy Lid, Hinged at Back; Weight of Lid Keeps it Closed; Absolutely Weather-proof; Weight per dozen about 72 lbs..... $1.25

One-half Dozen in a Crate

APPROVED BY POSTMASTER-GENERAL.

Each

No. 65—17¾x6¾ INCHES; 22 Gauge Galvanized Steel Aluminum, Painted, with Signal Chain 3 inches in Length; Bracket to attach to Post 3¼ inches Wide; Wire Spring Staple for Padlock; Lid Hinged at Back in such a way that when opened its own weight will close it; Weight per crate about 33 lbs..... $1.50

One-half Dozen in a Crate.

NOTE—This Box is made in exact accordance with the Government Specifications, and is APPROVED BY POSTMASTER-GENERAL.

LETTER BOXES.

Each

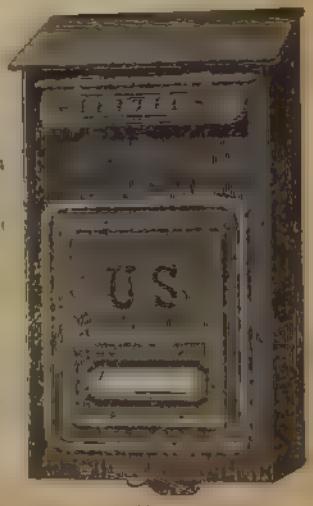
No. 21—11x7x3 inches; Cast Iron, Japanned; Two Corrugated Keys No. 7 to each Box; Weight each about 8½ lbs $5.00

Packed Loose.

Each

No. 22—10½x5½x2¾ inches; Wrought Steel, Japanned, Dull Black Finish; Flat Steel Spring on Bottom for Holding Papers; Brass Name Plate back of Glass; Two Flat Steel Keys to each Box; Weight each about 2 lbs..... $[illegible]

One in a Cardboard Box.



FLAGS

U. S. PRINTED MUSLIN, MOUNTED ON STICKS

Full Number of Stars

Best quality fast and bright colors, well starched

No.		Per gro.	No.		Per gro.
1	2 x 3 in	$0 40	7½	12x18 "	$7 50
2	2½x 4 "	48	8a	14x24 "	8 50
3	3½x 6 "	80	8	18x27	12 00
4	4 x 7 2 "	1 08	9	20x30	20 70
5	6 x 9½ "	2 00	10	27x43 "	30 00
6	7 x10½ "	2 56	11	30x50 "	39 00
6a	8 x12 "	3 84	11½	36x56	47 00
7	11 x18 "	5 86	12	40x60	74 00
			12½	40x72 "	91 00

PRINTED MUSLIN

With grommets

Bright fast colors, washable

No.		Per doz.	No.		Per doz.
50	8x13 inches	$0 46	55	21½x4 feet	$8 76
51	12x18 "	1 00	56	3 x5 "	10 50
52	15x24 "	1 20	57	4 x6 "	22 00
53	24x36 "	2 40	59	5 x10 "	28 00
			61	6 x12 "	37 50

U. S. PRINTED IMITATION BUNTING

Soft Finish, Fast Colors, Hemmed Edges

No.		Unmounted Per doz	No.		Mounted on staffs with ornaments Per doz
846	12 inches	$0 64	847	18 inches	$0 96
838	17 "	1 28	842	17 "	1 60
839	2 feet	1 92	843	2 feet	2 40
840	3 "	3 68	844	3 "	4 40
841	4 "	7 20	845	4 "	8 80

U. S. SUPERIOR PRINTED COTTON BUNTING

Very bright and absolutely fast colors on strong materia. Canvas headings on 4 grommets.

No.			Per doz
848	3½x 4 feet	printed on sheeting	$13 44
849	3 x 5 "	" "	20 60
261	4 x 6 "	" "	32 64
262	5 x 8 "	" "	48 00
266	6 x10 "	" "	60 00
264	8 x12 "	" " extra heavy cotton	86 40

PRINTED PAPER PIN FLAGS

No.			Per gro
502	7½x1½ inches	United States	$0 80
503	1½x2 "	"	1 06
504	1½x2 "	Germany	1 06
505	1½x2 "	France	1 06

U. S. SEWED WOOL STANDARD BUNTING

These bunting flags are equal to any in the market. Sewed throughout and fast red in a first class manner. The best wool in ship guarantee. Stock sizes with canvas heading and grommets. Large sizes (Nos. 671 to 674 with rope and strong canvas headings. Full number of stars. Sewed in other designs except the two eagles, sizes

No.	Size	Each	No.	Size	Each
650	2 x 3 feet	13 stars $1 52	662	6½x12 feet	$12 00
651	2½x 4 "	only 2 24	664	7 x12 "	13 44
652	3 x 5 "	3 60	666	7 x14 "	14 96
653	3 x 6 "	4 32	667	8 x15 "	17 44
654	4 x 6 "	5 00	668	8 x16 "	18 72
655	4 x 7 "	5 60	669	9 x14 "	18 40
656	4 x 8 "	6 30	670	9 x15 "	19 68
657	5 x 8 "	7 10	671	10 x15 "	21 44
658	6 x 9 "	9 12	673	12 x18 "	23 52
659	5 x10 "	8 96	674	10 x16 "	23 36
661	6 x10 "	9 60	675	8 x20 "	26 40

U. S. REGULATION BUNTING

No.		Each
750	Size 4½x5½ feet, size adopted by the war department	$5 14
751	Size 6x6½	8 60

U. S. PRINTED SILK

No.		Unmounted Per doz	No.		Mounted on staffs with ornaments Per doz.
450	2x 3 inches	$0 50	550	2x 3 inches	$0 68
451	4x 6 "	1 34	551	4x 6 "	1 52
452	7x10 "	2 08	552	7x10 "	2 68
453	8x12 "	2 68	553	8x12 "	3 36
454	12x18 "	5 20	554	12x18 "	5 68
455	18x24 "	9 60	555	16x24 "	10 60
456	24x36 "	19 00	556	24x36 "	20 60
		Each			Each
457	32x48 "	$2 60	557	32x48 inches	$2 80
458	36x60 "	4 70	558	36x60 "	5 00
459	48x72 "	8 00	559	48x72 "	8 70
560	2x3 inches, mounted on plus				60

SHIELD AMERICAN SHIELDS

Printed on white cardboard in bright red colors.

No.		Per doz.
861	12x18 inches	$0 70
862	18x24 "	1 20
863	20x28 "	2 00

FLAGS OF FOREIGN NATIONS

PRINTED MUSLIN, MOUNTED ON STICKS

Best quality fast and bright colors

In sets of 12 different nations. In sets of 24 different nations

No.		Per doz sets	No.		Per doz. sets
801	18 inches	$8 40	804	8 inches	$15 12
802	23 "	16 80	805	23 "	33 60
803	36 "	23 52	806	36 "	47 04

PRINTED SILK

A set of Hungary, Belgium, Canada, China, Cuba, Denmark, England, Germany, Italy, Japan, Mexico, Netherlands, Norway, Portugal, Russia, Spain, Sweden, Switzerland, Turkey, and Transvaal.

No.		Unmounted Per doz.	No.		Mounted on staffs with gilt tops Per doz.
810	3x 3 inches	$0 66	811	2x 3 inches	$0 84
811	4x 6 "	1 50	814	4x 6 "	1 68
809	8x12 "	4 00	816	8x12 "	4 70
812	12x18 "	7 90	818	12x18 "	6 70

FLAG STAFFS

STAINED WALNUT AND VARNISHED STAFFS

With Bronzed Wood Flat Spears

No.		Per doz.	No.		Per doz.
850	8 inches	$0 40	856	30 inches	$0 70
851	12½ "	48	857	36 "	86
852	14 "	52	858	50 "	1 20
853	18 "	56	859	60 "	1 90
854	20 "	60	860	72 "	2 40
855	24 "	64			

FLAG POLES

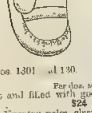
Tapered, with wooden trucks, ball, and bayonets.

No.		Per doz.	No.		Per doz.
825	8 feet	$12 48	828	14 feet	$32 64
826	10 "	16 10	829	16 "	42 24
827	12 "	19 20			

GYMNASIUM GOODS

BOXING GLOVES

Showing Corbett Pattern



Nos. 1301 and 1302

No.		Per doz. sets
1301	Boy's, white color, elastic wrist and filled with good quality curled hair	$24 00
1302	Made of white colored kid back, Yucatan palm, elastic wrist, full size, and filled with curled hair	36 00
1303	Corbett style, made of white colored kid back, palm of brown kid, elastic wrist, and filled with curled hair	44 00

Nos. 1304, 1305, and 1306

No. 1308

No.		Per doz. sets
1304	Corbett pattern, made of brown Yucatan kid with safety grip laced wrist, stuffed with curled hair	$54 00
1305	Made of black Yucatan kid, padded wrist, laced safety grip, and filled with curl. hair	60 00
1306	Corbett pattern, made of green kid, laced, and filled with good quality curled hair	66 00
1308	Professional, made of California Napa green kid, padded wrist, safety grip, with large full size wad laced wrist, filled with the finest curled hair	108 00

STRIKING BAGS

Single End Striking Bag

Double End Striking Bag

Each fitted with first quality of rubber bladder, each in box

No.		Per doz.
1420	Yucatan leather, circumference 30 inches	$24 00
1421	Same as No. 1420 double end elastic cable hooks and extra rope	29 00
1422	Yucatan leather, nicely finished, triple stitched seams, circumference 32 inches	35 00
1423	Same as No. 1422, double end elastic cable, hooks, and extra rope	40 00
1424	Extra fine quality kid, triple stitched and welted seams, circumference 32 inches	48 00
1425	Same as No. 1424, double end, elastic cable, hooks and extra rope	54 00
1426	Extra fine quality Yucatan leather, triple stitched and welted seams, circumference 32 inches	66 00
1430	Extra fine bladders, first quality rubber	14 00

A bag should not be inflated like a bicycle tire, as there is no thread that will stand such a strain and the bag will not be as quick. Professional bag punchers inflate the bag full, but do not strain the seams.

STRIKING BAG PLATFORMS

No. 1

No.		Each
3	Japanned cast frame, forged steel brace rod, polished ash rail, secures to door frame or wall by screws or nails, adjustable to height by reversing frame, special tan bag with pure gum bladder, weight complete 12 pounds	$15 50

No. 4

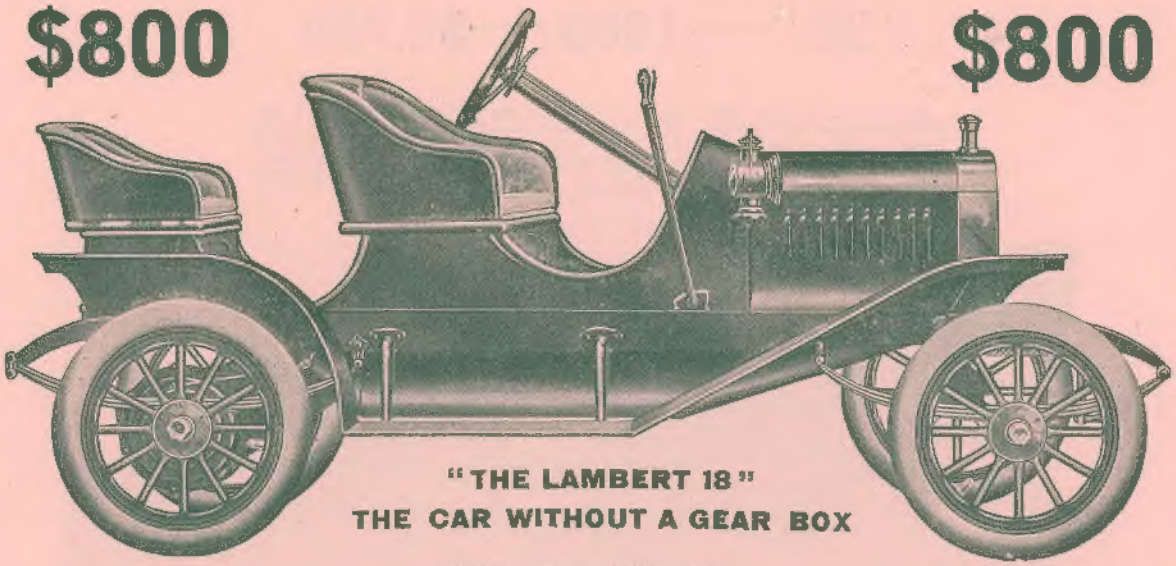
No.		Each
4	Heavy cast frame, japanned, 2 forged steel brace rods, attached with screws, punches, set head, dystalat with set screw, can be raised or lowered in frame, special reinforced bag, very fast on account of the rubber designed for gymnasium and professional use, weight complete 20 pounds	$18 76

PRICES SUBJECT TO CHANGE WITHOUT NOTICE

The Lambert Friction Flyer

1908

$800 **$800**



SPECIFICATIONS:

Capacity—Three passengers. **Wheel Base**—95 inches. **Tread**—56 inches. **Frame**—Pressed steel. **Wheels**—30-inch, wood artillery. **Tires**—30 x 3 inch, Michelin. **Motor**—2-cylinder opposed, 18 h.p. **Transmission**—Friction. **Speed**—1 to 35 miles an hour. **Carbureter**—Float feed. **Ignition**—Jump spark. **Radiator**—Honeycomb. **Drive**—Single chain to rear axle, encased. **Brake**—External on each rear hub. **Bearings**—Hyatt Roller and Standard Ball. **Clearance**—12 inches. **Gasoline Capacity**—12 gallons. **Length of Body**—From inside of dash, 76 inches. **Width of Body**—To outside mudguard, 63 inches. **Width of Body**—32 inches. **Width of Front Seat**—36 inches inside of cushion. **Width of Rear Seat**—18 inches inside of cushion. **Height of Floor from Ground**—29 inches. **Painting**—French gray. **Upholstering**—Fine quality of leather; springs in cushions and backs of seats. **Weight**—1,350 pounds. **Equipment**—Two oil lamps, horn and full tool equipment. **Price**—$800 complete, f. o. b. factory.

$800 **"The Lambert 18"** **$800**

The Best Value in America at the Price

Ask the best posted mechanic of your acquaintance what he thinks of the Friction Drive, and the answer will be: "The Best on Earth." Ask the farmer and he will not know, because his calling has not required that he keep abreast with the improvements in power transmission—especially as applied to automobiles.

Better still, see the Lambert, have a demonstration, examine the mass of testimony that has come to us unsolicited; we feel sure that the verdict will be: "I will buy a Lambert because it is the simplest, nobbiest and best car on the market for the money." Write for catalogue 12.

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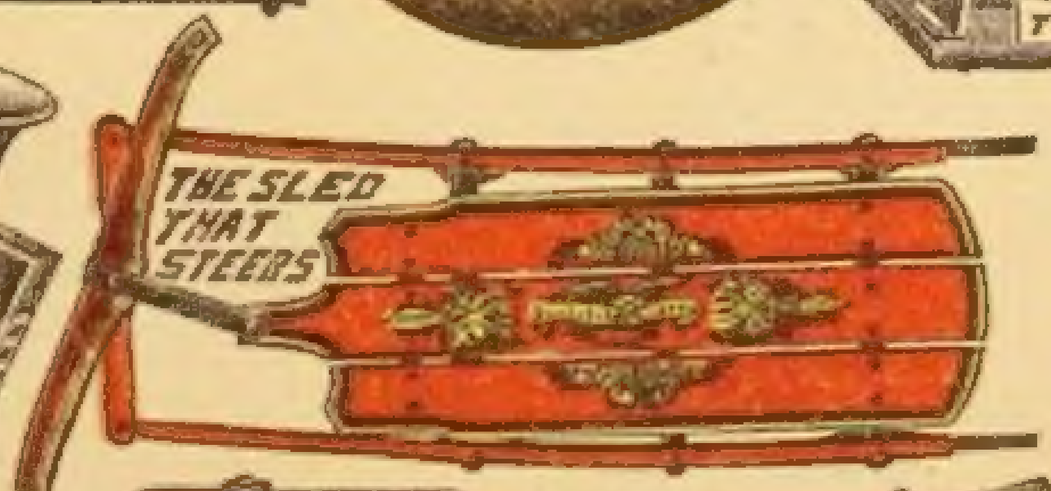
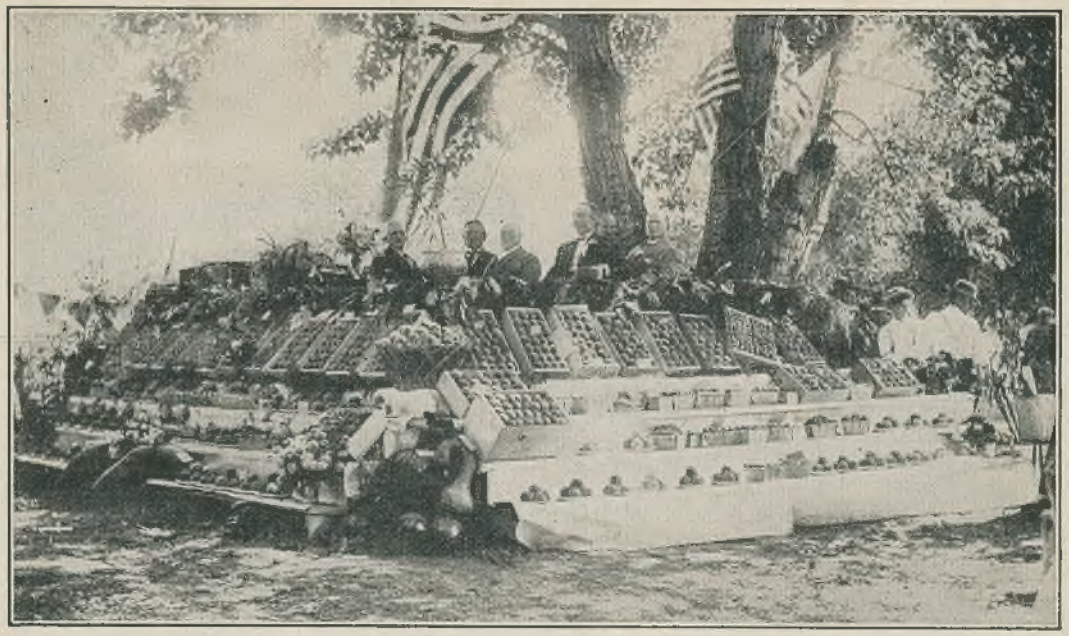


JESSIE WILLCOX SMITH



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